

Base manual covers 84" tall  
bottom mount refrigerators.

# Service

## Bottom Mount Refrigerators

Service Manual for  
Amana®

Refer to "Technical Sheet", part #12074201  
for values and wiring schematics.

This manual is to be used by qualified appliance technicians only. Amana does not assume any responsibility for property damage or personal injury for improper service procedures done by an unqualified person.

***Amana***  
Raytheon Appliances

RS1200001  
Revision 0  
November 1996

# Safety and Electrical Information

## Safety Symbols, Words, and Labels



### DANGER

Immediate hazards which *will* result in severe personal injury or death.



### WARNING

Hazards or unsafe practices which *could* result in severe personal injury or death.



### Caution

Hazards or unsafe practices which *could* result in minor personal injury or product or property damage.

Amana Refrigeration, Inc. is not responsible for personal injury or property damage resulting from improper service. Review all service information before beginning repairs.

Warranty service must be performed by an **authorized** Amana® technician. Amana Refrigeration, Inc. also recommends contacting an **authorized** Amana® technician if service is required after warranty expires. Contact (319) 622-5511 for further assistance.

## Electrical Requirements



### WARNING

Electrical Grounding Instructions -- This refrigerator is equipped with a three-prong (grounding) plug for protection against possible shock hazards. If a two-prong wall receptacle is encountered, contact a qualified electrician and have the two-prong wall receptacle replaced with a properly grounded three-prong wall receptacle in accordance with the National Electrical Code.

Refrigerator is designed to operate on a separate 103 to 126 volt, 15 amp., 60 cycle line.

**Do not under any circumstances cut or remove the round grounding prong from the plug. Refrigerator must be grounded at all times. Do not remove warning tag from power cord.**

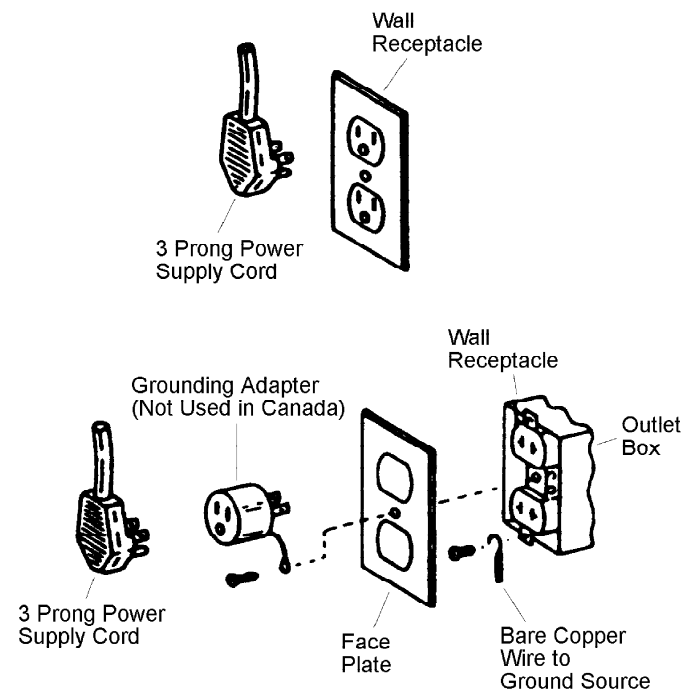


### WARNING

**Do not use a 2 prong adapter.  
Do not use an extension cord.**

## Grounding Information

Standard color for ground wires is green or green with yellow striping. Ground wires are not to be used as conductors carrying current. Compressor, condenser fan motor, evaporator fan motor, defrost timer, temperature control, and ice maker are grounded through an individual wire attached to electrical component and another part of refrigerator. Ground wires should not be removed from individual components while servicing unless component is removed and replaced. It is extremely important to replace all grounds prior to completing service. When nib-headed screw is used to complete grounding circuit, replace screw with a like screw.



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# Installation Instructions

## Uncrating



### WARNING

To avoid severe personal injury or property damage from refrigerator tipping over, 2 or more people are required to install refrigerator. Take caution when removing refrigerator from skid. Do not drop refrigerator. Do not open more than one door at a time, until refrigerator has been secured to structure. Refrigerator is top heavy and easily tips.



### Caution

To avoid personal injury, wear gloves when performing any installation procedure.

The 2 x 4 mounting board, for securing refrigerator to wall, is attached to top rear of refrigerator. Save cardboard to protect walls when installing refrigerator.

1. Remove top and bottom strap.
2. Remove top cap.
3. Cut along dashes on carton rear with a utility knife extended 1/4".
4. Remove carton, exterior packaging, and tape from lag screws. Do not remove nylon cord from power cord.
5. Remove shipping brackets from skid by removing 4 bolts with a 7/16" socket head screwdriver.
6. Strap refrigerator on cart. To prevent doors from opening, tilt refrigerator to handle side. Remove refrigerator from skid.
7. To avoid floor damage, use protective material.



### Caution

To avoid property damage, protect soft vinyl or other flooring with protective material when moving refrigerator. Verify wheels are clean before placing refrigerator on flooring.

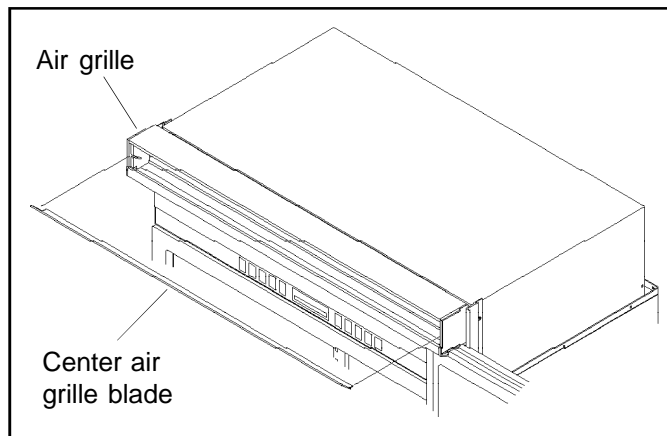
## Securing



### WARNING

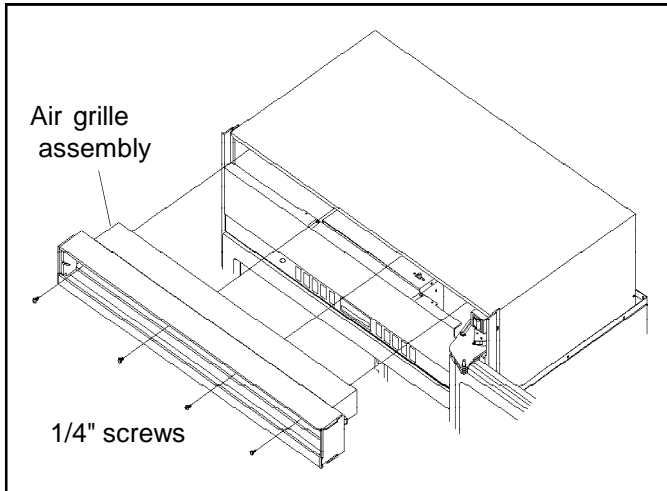
To avoid severe personal injury or property damage from refrigerator tipping over, do not open more than one door at a time, until refrigerator has been secured to the structure. Secure refrigerator to structure using lag bolts located in the refrigerator's machine compartment.

1. Locate and mark 2 wall studs to mount 2x4. See "Installation Specifications". Do not cover electrical outlet with 2x4. Locate and predrill 1/4" holes in 2x4. Countersink 2x4 for bolt heads using a wood bit. See "Installation Specifications".
  2. Remove 2x4 mounting board from top rear of refrigerator. Bolt 2x4 securely to wall studs with supplied bolts. If application does not have studs such as a framed wall mount to wall, not surface, using a minimum 1/4" diameter fasteners (not supplied). If cabinets are deeper than 24" mounting board must be shimmed and structurally secured to the 2 x 4 board. Longer bolts are required to shim mounting board.
  3. To avoid water line damage, verify water line is secure so refrigerator does not run over water line. See "Installation Specifications" for water line location.
  4. Repair any loose flooring in cutout.
  5. Tape door and drawer shut with masking tape.
- Before moving the refrigerator in place, confirm the finished dimensions, electrical and plumbing locations, and minimum door and drawer clearances are accurate.
6. Position refrigerator in front of cutout.
  7. Remove air grille assembly by lifting center blade.

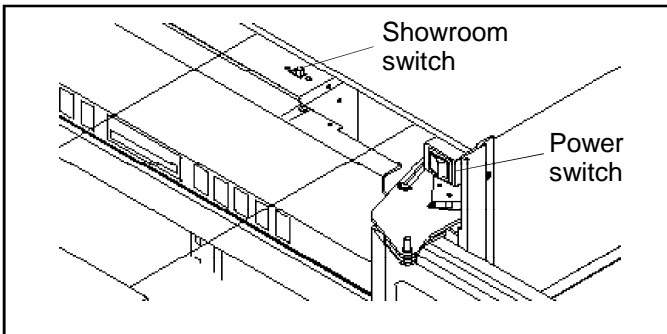


# Installation Instructions

- Remove (4) 1/4" screws with a magnetic extended screw driver.
- Pull air grille assembly forward.



- Verify operation by plugging in power cord. Power switch will be shipped in the *on* position and the showroom switch will be shipped in *the off* position. Display should flash. Press any key. There is a 6 minute delay before refrigerator starts. Verify position of each switch if there is no power to refrigerator.



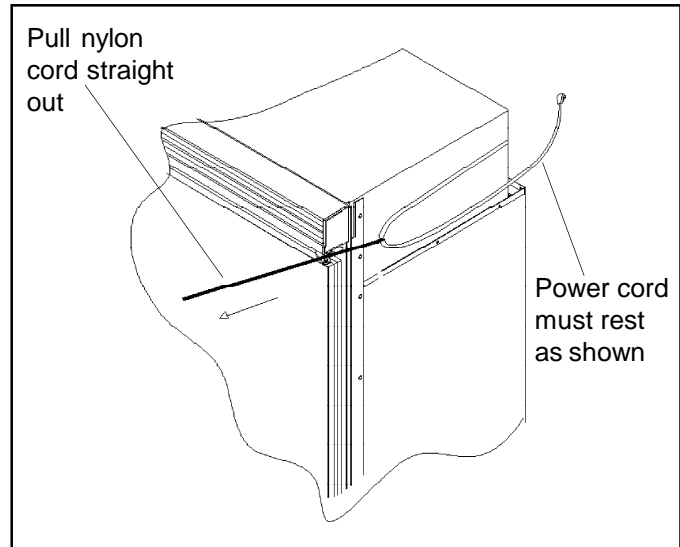
- Pull end of nylon cord around refrigerator side (side without 1/4" panel installed, if any) level with top of refrigerator door. Tape cord in place.



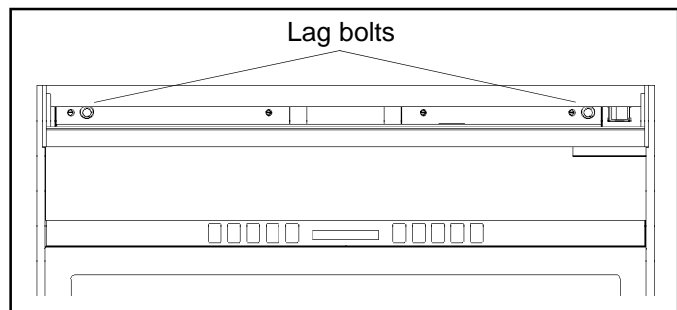
## WARNING

To avoid electrical shock which can cause severe personal injury or death, disconnect power to refrigerator using power switch before performing any installation procedure. After performing installation procedure, connect power using power switch.

- Roll refrigerator into cutout to within 3" of being flush with kitchen cabinets. To avoid kitchen cabinet damage, place cardboard between kitchen cabinets and refrigerator. Push cardboard back with refrigerator and remove cardboard when refrigerator is in place. Remove power cord slack by pulling nylon cord straight out while pushing refrigerator completely into place. Power and nylon cord will rest along refrigerator side.



- Level refrigerator by turning front and rear leveling wheel bolts clockwise to raise refrigerator and counterclockwise to lower refrigerator. Rotate stabilizing legs until firmly in place against floor.
- Align refrigerator with sides of kitchen cabinets using leveling bolts.
- Secure lag bolts by removing center air grille blade. Screw lag bolts securely into 2x4 mounting board using a magnetic 6" extension socket. See "Installation Specifications".



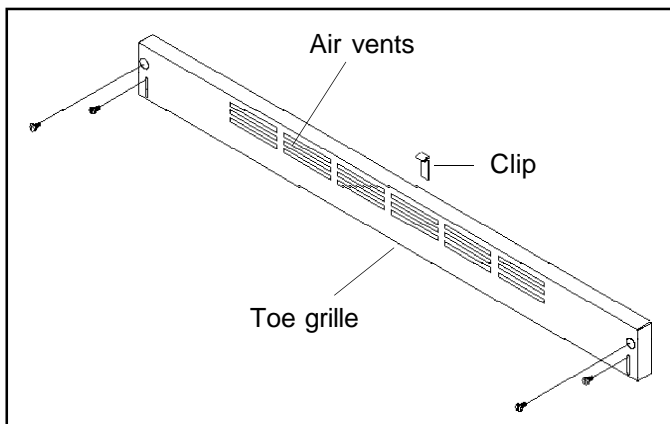
- Push extra nylon cord back in along side of refrigerator out of sight or cord can be flush with refrigerator.

# Installation Instructions

## Water Connection

The garden hose fitting, compression nut, and sleeve are located in the literature packet. Amana® Clean 'n Clear™ Bayonet Style Water Filtration System WF60 is shipped in crisper drawer. See water filter installation and operating instructions for specifics.

1. Flush air and impurities from water line by turning on water supply and running a pint or more of water into a bucket.
2. Remove plastic cap from water valve fitting. Connect copper tubing to water valve with brass nut and brass sleeve. Insert copper tubing completely into water valve inlet port. Connect brass nut on copper tubing to water valve inlet port fitting. Confirm copper tubing is secure by pulling on copper tubing.
3. Turn on water supply to refrigerator and check for leaks. Turn off water supply to refrigerator and correct any leaks. Repeat this process until no leaks exist. Completely turn on water supply to refrigerator.
4. Verify drain pan is installed and aligned.
5. Replace toe grille with air vents to the top. Kitchen flooring must allow toe grille to be removed. See "Installation Specifications" for height clearance. See "Custom Finishing Options" when using a custom toe grille.

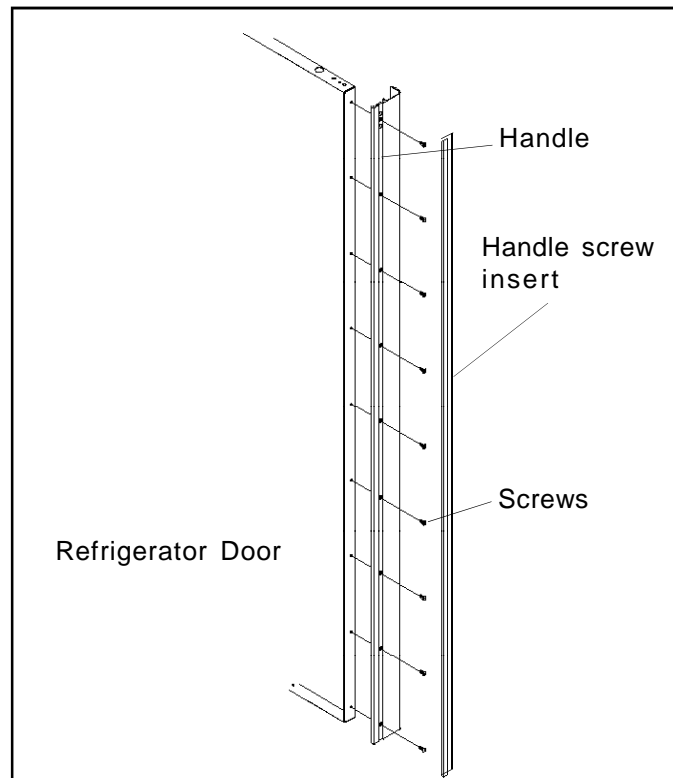


## Door Panel Installation

Panels must not weigh more than 50 pounds per door.

### Refrigerator Door 3/4" Raised Panel

1. Slide out handle screw insert and remove handle by removing screws with a Phillips screwdriver.

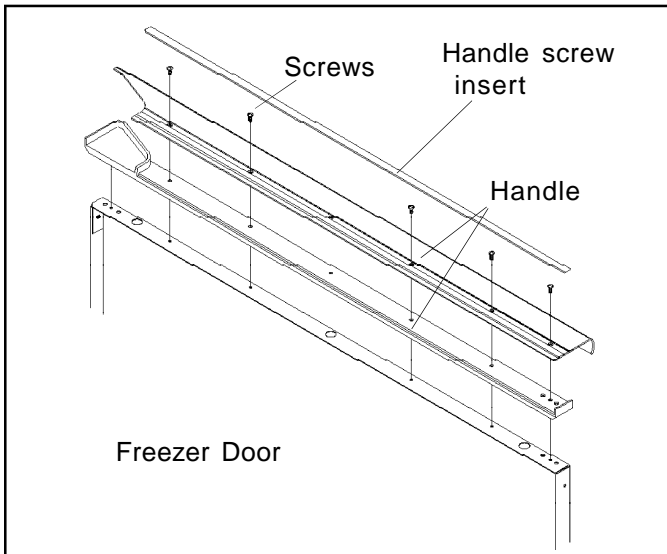


2. Align panel brackets (supplied) with center edge of panel. Install brackets using 1/4" screws (supplied).
3. If base panel is less than 1/4" use plastic shims (supplied). Shims go between bracket and wood to space panels to desired depth.
4. Drive low profile screws (supplied) with Phillips screwdriver.
  - Panel brackets must be exactly flush to 1/16" inboard of panel edge.
  - For ease of panel installation 2 people are required to lift and guide panel into trim.
  - Install 1 panel at a time.
5. Align panel in trim and push evenly. For smoother installation apply bar soap on door trim and refrigerator trim. If panel binds loosen top or side door trim. Adjust panel and retighten.
6. Install handle with screws. Install screw strip (supplied) by starting in one corner and pushing the length of the strip down.

# Installation Instructions

## Freezer Door 3/4" Raised Panel

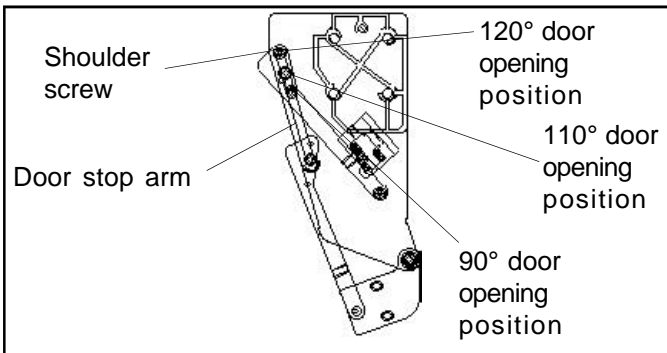
1. Slide out handle screw insert and remove handle by removing screws with a Phillips screwdriver. Handle is in 2 pieces, reinstall if pieces come apart.



2. 1/2" x 3 1/2" notch is required on hinge side.
3. Remove top handle trim and 1 side trim piece for ease of installation.
4. Align panel brackets and screws.
5. Align panel in trim and push evenly. Start at one end and work across. For smoother installation apply bar soap on door trim and freezer trim. If panel binds loosen top or side door trim. Adjust panel and retighten.
6. Install handle with screws. Install screw strip (supplied) by starting in one corner and pushing the length of the strip down.

## Door Stop Adjustment

1. Remove center grille blade from top air grille.
2. Remove top air grille by removing (4) 1/4" screws with a magnetic screw driver. Pull assembly forward.
3. Open refrigerator door so door stop arm and shoulder screw are accessible. Shoulder screws should be in 110° door opening position.
4. Remove shoulder screw and place shoulder screw in the 90° or 120° door opening position.

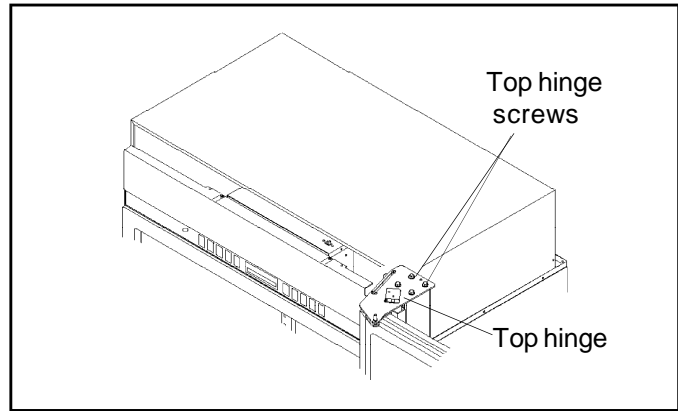


## Hinge Adjustment

Verify proper door alignment. Wait until panels are installed for door settlement. Only the top hinge is adjustable.

Adjust top hinge by completing the following:

1. Remove air grille blade and air grille assembly.
2. Loosen top hinge screws.



3. Align refrigerator door by lifting.
4. Tighten screws.
5. Install air grille.
6. Replace air grille assembly.

## Interior Setup

1. Remove interior packaging.
2. Turn shelves upright.
3. Move dairy module to desired position on refrigerator door. See "Model Diagram".
4. Twist cardboard in ice bin to release freezer tray.
5. Remove literature packet from freezer tray and give to consumer. Complete "Installation Checklist" with consumer.



# Sound Information

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## Normal Operating Sounds

This new refrigerator may be replacing a differently designed, less efficient or smaller refrigerator. Today's refrigerators have new features and are more energy efficient. As a result, certain sounds may be unfamiliar. These sounds are normal and will soon become familiar. These sounds also indicate the refrigerator is operating and performing as designed.

- **Freezer and fresh food fan** air rushes and whirs.
- **Sealed system** (evaporator and heat exchanger) refrigerant flow gurgles, pops or sound like boiling water.
- **Defrost heater** sizzles, hisses or pops.
- **Condenser fan** air rushes and whirs.
- **Compressor** has a high pitched hum or pulsating sound.
- **Ice cubes** from ice maker drop into ice bucket.
- **Ice maker water valve** hookup buzzes when ice maker fills with water. This occurs whether or not refrigerator is connected to water supply. If refrigerator is not connected to water supply, stop sound by raising ice maker arm to *off* position.
- **Foam insulation** is very energy efficient and has excellent insulating capabilities. However, foam insulation is not as sound absorbent as previously used fiberglass insulation.

# System Diagnosis

## Pressure and Relationship Chart

Condition	Suction Pressure Variation from Normal	Head Pressure Variation from Normal	T1 Inlet Temperature Variation from Normal	T2 Outlet Temperature Variation from Normal	T3 Suction Temperature Variation from Normal	Wattage Variation from Normal
<b>Refrigerant Overcharge</b>	Increase	Increase	Warmer	Warmer	Colder	Increase
<b>Refrigerant Shortage</b>	Decrease	Decrease or Increase See "Refrigerant Shortage Symptoms"	Colder	Warmer	Warmer	Decrease
<b>Partial Restriction</b>	Decrease	Decrease or Increase See "Restriction Symptoms"	Colder	Warmer	Warmer	Decrease
<b>Air in System</b>	Near Normal	Increase	Warmer	Warmer	Warmer	Increase
<b>Low Ambient Installation (Reverse for High Ambient Installation)</b>	Decrease	Decrease	Colder	Warmer	Warmer	Decrease
<b>Additional Heat Load</b>	Increase	Increase	Warmer	Warmer	Warmer	Increase
<b>Inefficient Compressor</b>	Increase	Normal or Decrease	Warmer or Colder	Warmer	Warmer	Decrease

# System Diagnosis

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## Refrigerant Overcharge Symptoms

- Above normal freezer temperature.
- Compressor running continuously.
- Freezing in refrigerator due to Chef's Pantry™.
- High suction and head pressure.
- High wattage.
- Warm evaporator inlet and outlet temperature.
- Below ambient suction tube temperature. Check for separated heat exchanger when suction temperature is colder than ambient.
- Refrigerant will *flood out* causing suction line to frost or sweat, if defrost system fails and cooling coil is not defrosted. Correct problem instead of purging refrigerant.
- Freezer colder than necessary (normal package temperature is 0° to 2°F).
- Evaporator fan motor not running.

## Refrigerant Shortage Symptoms

- Rise in refrigerator and freezer temperatures. Warm beverages will be first indication of possible refrigerant shortage. Frozen meats and vegetables will not thaw immediately. Some freezing may occur in refrigerator section due to additional run time because of Chef's Pantry™. Capillary line will not have full column of liquid with refrigerant shortage. A noticeable hissing sound in evaporator will be heard. Hissing should not be mistaken for regular refrigerant boiling sounds.
- Long or continuous run time.
- Traces of oil caused by leak or cracked refrigerant line.
- Lower than normal wattage.
- Compressor will feel hot due to heat generated by motor windings from continuous running. Compressor will not be as hot as it would be with full charge and long run times caused by reasons such as dirty condenser.
- Condenser will feel room temperature.
- Capillary tube will feel warmer than normal.
- If high side leak, both gauges will show lower than normal readings. As charge becomes less, readings will lower. Suction pressure gauge will probably indicate a vacuum.
- If low side leak, suction pressure gauge will show lower than normal readings, probably in a vacuum. Head pressure gauge will show higher than normal. Readings will probably rise because of air drawn in through leak is compressed by compressor and accumulates in high side (condenser) of system.
- Partial frosting of evaporator.

## Restriction Symptoms

- Refrigeration cooling occurs on low pressure side of partial restriction.
- Total restriction will stop circulation of refrigerant and no cooling will occur.
- Touch refrigeration lines. Most common place for restriction is at drier filter or capillary tube inlet or outlet.
- If partial restriction there will be temperature difference at restriction point. Evaporator side will be cooler. In most cases, frost and/or condensation will be present. Longer time is required for system to equalize.
- Kinked line will cause restriction. Visually check entire system for kinks.
- Slight restriction will give same indications as refrigerant shortage with lower than normal back pressure, head pressure, wattage, and warmer temperatures.
- If total restriction is on discharge side of compressor, higher than normal head pressures and wattages will occur. This is only true while low side is being pumped out and if restriction was between compressor and first half of condenser.

Diagnose restriction by completing the following:

1. Discharge system.
2. Replace drier-filter.
3. Evacuate and recharge system with specified refrigerant charge.

If refrigerator performs normally, the following conditions may exist:

- refrigerant loss
- partially restricted drier
- moisture in system

If refrigerator performs as previously described, capillary line or condenser may be restricted. Locate and correct restriction point.

Restriction reduces refrigerant flow rate and heat removal rate. Total restriction may be caused by moisture, poorly soldered joint, or solid contaminants in system. Moisture freezes at evaporator inlet end of capillary tube. Solid contaminants collect in drier. Wattage drops because compressor is not circulating normal amount of refrigerant.

If restriction is on low side suction, pressure will be in a vacuum and head pressure will be near normal. If restriction is on high side, suction pressure will be in a vacuum and head pressure will be higher than normal during pump out period. In both cases, it will take longer than 10 minutes for head pressure to equalize with low side after compressor stops.

# System Diagnosis

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## Air in System Symptoms

Air in system can be caused by low side leak or improper servicing. If low side leak occurs, temperature control will not achieve temperatures and compressor will run continuously. Compressor will eventually pump low side into a vacuum, drawing air and moisture into system. Air and R134a do not mix. Air pressure will be added to normal head pressure, resulting in higher than normal head pressures.

Determine if air is present by reading head pressure gauge with refrigerator off and evaporator and condenser at same temperature. Verify temperature on condenser outlet tube. Temperature should be within 3° or 4°F of what "Pressure and Temperature Relationship Chart" shows for a given idle head pressure. If temperature of condenser outlet is considerably lower than idle head pressure of gauge, air is in system.

Diagnose air in system by completing the following:

1. Thoroughly check for leaks.
2. Correct leak source. Do not attempt to purge air off. This could result in an undercharged system.
3. Discharge system.
4. Replace drier-filter.
5. Evacuate and recharge system with specified refrigerant charge.

## Low or High Ambient Temperature Installation Symptoms

Lower ambient air temperature reduces condensing temperature and temperature of liquid entering evaporator. Increase in refrigeration due to operation in lower ambient results in decrease in power consumption and run time. At lower ambients there is reduction in cabinet heat leak which is partially responsible for lower power consumption and run time.

An increase in refrigeration will not occur below certain minimum ambient temperature. Temperature varies with type and design of refrigerator.

Ambient temperatures lower than 55°F will affect efficiency. The higher the ambient temperature, the higher the head pressure must be to raise the high side refrigerant temperature above condensing medium. Head pressure will be higher as ambient temperature raises. Refrigerators installed in ambient temperatures lower than 55°F will not perform efficiently because system pressures are generally reduced and unbalanced. Lower head pressure forces less liquid refrigerant through capillary line, resulting in symptoms of refrigerant shortage. The lower the ambient temperature, the more pronounced the condition.

When ambient temperature is below cut-in of temperature control, compressor will not operate.

Drain traps will freeze in ambient temperatures of 32°F.

## Heat Load Symptoms

Increased heat load can result from addition of large supply of foods, excessive door openings, poor door sealing, interior light remaining on, etc.

Increased heat being absorbed by refrigerant in evaporator will affect temperature and pressure of gas returning to compressor. Refrigerator and freezer temperatures, power consumption, discharge, and suction pressures are all affected by heat load.

Pressures will be higher than normal under heavy heat load.

# HFC134a Service Information

HFC134a is alternative refrigerant for CFC12. HFC134a has an ozone depletion potential (ODP) factor of 0.0 and a global warming potential (GWP) factor of 0.27. HFC134a is not flammable and has acceptable toxicity levels. HFC134a is not interchangeable with CFC12. There are significant differences between HFC134a and CFC12 which must be considered when handling and processing refrigeration system.

## Health, Safety, and Handling

Health, safety and handling considerations for HFC134A are virtually no different than those for CFC12.

Health, Safety, and Handling	CFC12	HFC134a
Allowable overall exposure limit	1,000 ppm	Same
Vapor exposure to skin	No effect	Same
Liquid exposure to skin	Can cause frostbite	Same
Vapor exposure to eye	Very slight irritant	Same
Liquid exposure to eye	Can cause frostbite	Same
Above minimum exposure limit	Can cause Asphyxiation, Tachycardia, and Cardia Arrhythmias	Same
Safety and handling	Wear appropriate skin and eye protection. Use with adequate ventilation.	Same
Spill management	Remove or extinguish ignition or combustion sources. Evacuate or ventilate area.	Same
Fire and explosion hazards	May decompose if contact with flames and heating elements. Container may explode if heated due to resulting pressure rise. Combustion products are toxic.	
Storage conditions	Procedures/rules for CFC12 also apply for HFC134a	Same
Disposal procedures	Recycle or reclaim	Same

## Comparison of CFC12 and HFC134a Properties

Properties/Characteristics	CFC12	HFC134a
Ozone Depletion Potential (ODP)	1.0*	0.0*
Global Warming Potential (GPW)	3.2*	0.27*
Molecular weight	121	102
Boiling point at 1 atmosphere	-22°F (-30°C)	-15°F (-26°C)
Vapor pressure at 77°F (25°C)	80 psig	82 psig
Liquid density at 77°F (25°C)	82 lb/ft <sup>3</sup>	75 lb/ft <sup>3</sup>
Flammability	No	No
High-side system operating Pressure at 65°F (18°C) ambient	HFC134a approximately 3 psig higher than CFC12	
Low-side system operating Pressure at 65°F (18°C) ambient	HFC134a approximately 2 psig lower than CFC12	

\* Compared to CFC 11 = 1



### Caution

To minimize contamination, exercise extreme care when servicing HFC134A sealed systems.

- No trace of other refrigerants is allowed in HFC134a systems. Chlorinated molecules in other refrigerants such as CFC12, etc. will lead to capillary tube plugging.
  - Ester oil is used in HFC134a systems. Do not use mineral oil. HFC134a and mineral oils cannot be mixed. If mineral oils were used in HFC134a systems, lubricant would not return to compressor and would cause early compressor failure. If significant amount of oil has been lost from compressor, replace oil rather than adding oil.
  - Ester oils used in HFC134a systems are so hydroscopic that by the time an inadequate system performance is detected, oil will be saturated with moisture.
  - CFC12 has much higher tolerance to system processing materials, such as drawing compounds, rust inhibitors, and cleaning compounds, than HFC134a. Such materials are not soluble in HFC134a systems. If materials were to be washed from system surfaces by ester oils, they could accumulate and eventually plug capillary tube.
  - Care must be taken to minimize moisture from entering HFC134a system. Do not leave compressor or system open to atmosphere for more than 10 minutes. Excessive moisture in HFC134a system will react with compressor oil and generate acid.
  - Compressor must be replaced when performing low side leak repair.
  - Drier filter must always be replaced with service drier filter, part #B2150504.
- Important:** Unbrazing drier filter from tubing will drive moisture from desiccant and into system, causing acids to form. Do not unbraid filter drier from tubing. If CFC12 service drier was installed in HFC134A system, drier could overload due to excessive moisture.
- HFC134a compatible copper tubing, part #R0174075 (1/4" O.D. X 18" length) and part #R0174076 (5/16" O.D. X 24" length) must be used when replacing tubing.
  - Avoid system contamination by using Towerdraw E610 evaporating oil, part # R0157532, when flaring, swaging, or cutting refrigeration tubing.

# HFC134a Service Information

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## Service Equipment

Listed below is equipment needed for proper servicing of HFC134a systems. Verify equipment is confirmed by manufacturer as being compatible with HFC134a and ester oil system.

Equipment must be exclusively used for HFC134a. Exclusive use of equipment only applies to italic items.

- **Evacuation pump**

Check with vacuum pump supplier to verify equipment is compatible for HFC134a. Robinair, Model 15600, 2 stage, 6 cubic feet per minute pump is recommended.

- ***Four-way manifold gauge set, with low loss hoses***

- **Leak detector**

- ***Charging cylinder***

- ***Line piercing saddle valve***

(Schroeder valves). Seals must be HFC134a and ester oil compatible. Line piercing valves may be used for diagnosis but are not suitable for evacuation or charging, due to minute holes pierced in tubing. Do not leave mechanical access valves on system.

Valves eventually will leak. Molecules of HFC134a are smaller than other refrigerants and will leak where other refrigerants would not.

- ***Swaging tools***

- ***Flaring tools***

- ***Tubing cutter***

- **Flux**

- **Sil-Fos**

- **Silver solder**

- ***Oil for swaging and flaring***

Use only part #R0157532

- ***Copper tubing***

Use only part #R0174075 and #R0174076

- **Dry nitrogen**

99.5% minimum purity, with -40°F or lower dew point

- **Crimp tool**

- **Tube bender**

- **Micron vacuum gauge**

- ***Process tube adaptor kit***

- **Heat trap paste**

- ***ICI appliance grade HFC134a***

## Drier Replacement

Prior to opening refrigeration system, recover HFC134a refrigerant for safe disposal.

Every time sealed HFC134a system is repaired, drier filter must be replaced with, part # B2150504.

Cut drier out of system by completing the following steps. Do not unbrazed drier filter. Applying heat to remove drier will allow moisture into system.

1. Score capillary tube close to drier and break.

2. Reform inlet tube to drier allowing enough space for large tube cutter.

3. Cut circumference of drier at 1-1/4", below condenser inlet tube joint to drier.

4. Remove drier.

5. Apply heat trap paste on post condenser tubes to protect grommets from high heat.

6. Unbrazed remaining part of drier. Remove drier from system.

7. Discard drier in safe place. Do not leave drier with customer. If refrigerator is under warranty, old drier must accompany warranty claim.



### **DANGER**

To avoid death or severe personal injury, cut drier at correct location. Cutting drier at incorrect location will allow desiccant beads to scatter. Completely clean area of beads, if spilled.

# HFC134a Service Information

## Replacement Service Compressor

HFC134a service compressors will be charged with ester oil and pressurized with dry nitrogen. Before replacement compressor is installed, pull out 1 rubber plug. A *pop* from pressure release should be heard. If a *pop* sound is not heard, do not use compressor. Positive pressure in compressor is vital to keep moisture out of ester oil. Do not leave compressor open to atmosphere for more than 10 minutes.

## Compressor Testing Procedures

- Refer to "Temperature and Relationship Chart" for operating watts, test points, and temperature relationship test.
- Temperature testing is accomplished by using 3 lead thermocouple temperature tester in specific locations. Test point T-1 is outlet on evaporator coil and T-2 is inlet. Test point T-3 is suction tube temperature midway between where armaflex ends and suction port of compressor (approximately 12 inches from compressor).
- Thermocouple tips should be attached securely to specified locations.
- Do not test during initial *pull down*. Allow one off cycle or balanced temperature condition to occur before proceeding with testing.
- Refrigerator must operate minimum of 20 minutes after thermocouples are installed.
- Turn control to colder to obtain required on time.
- Wattage reading must be recorded in conjunction with temperature test to confirm proper operation.
- Suction and head pressures are listed on "Temperature and Relationship Chart" Normally these are not required for diagnosis but used for confirmation on systems which have been opened.

## Refrigerant Charge

Refrigerant charge in all capillary tube systems is critical and exact amount is required for proper performance. Factory charges are shown on serial plate. Do not use refrigerant other than shown on serial plate.

## Leak Testing

Undetected leaks lead to repeated service calls and eventually result in system contaminations, restrictions, and burned out compressors.

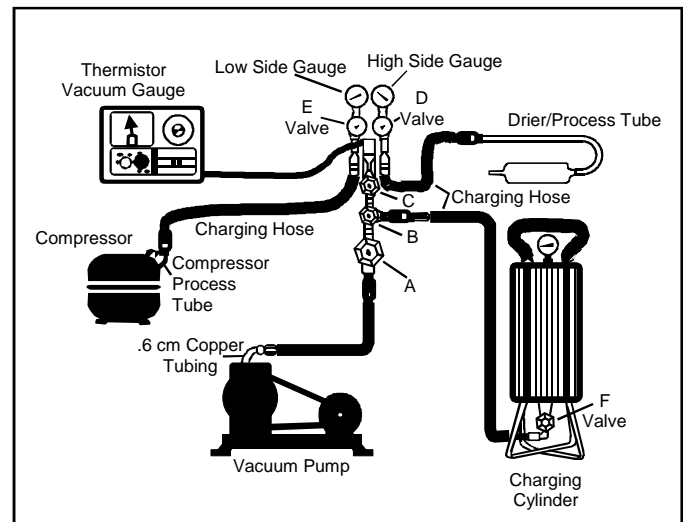
After recharging, sealed system must be thoroughly tested for leaks. If a very small leak is difficult to isolate, coat area with soap suds and observe location of bubbles.



## WARNING

To avoid death or severe personal injury, never use oxygen, air or acetylene for pressure testing or cleanout of refrigeration system. Use of oxygen, air, or acetylene may result in violent explosion. Oxygen may explode on contact with oil and acetylene will spontaneously explode when under pressure.

## Evacuation and Charging



# HFC134a Service Information



## WARNING

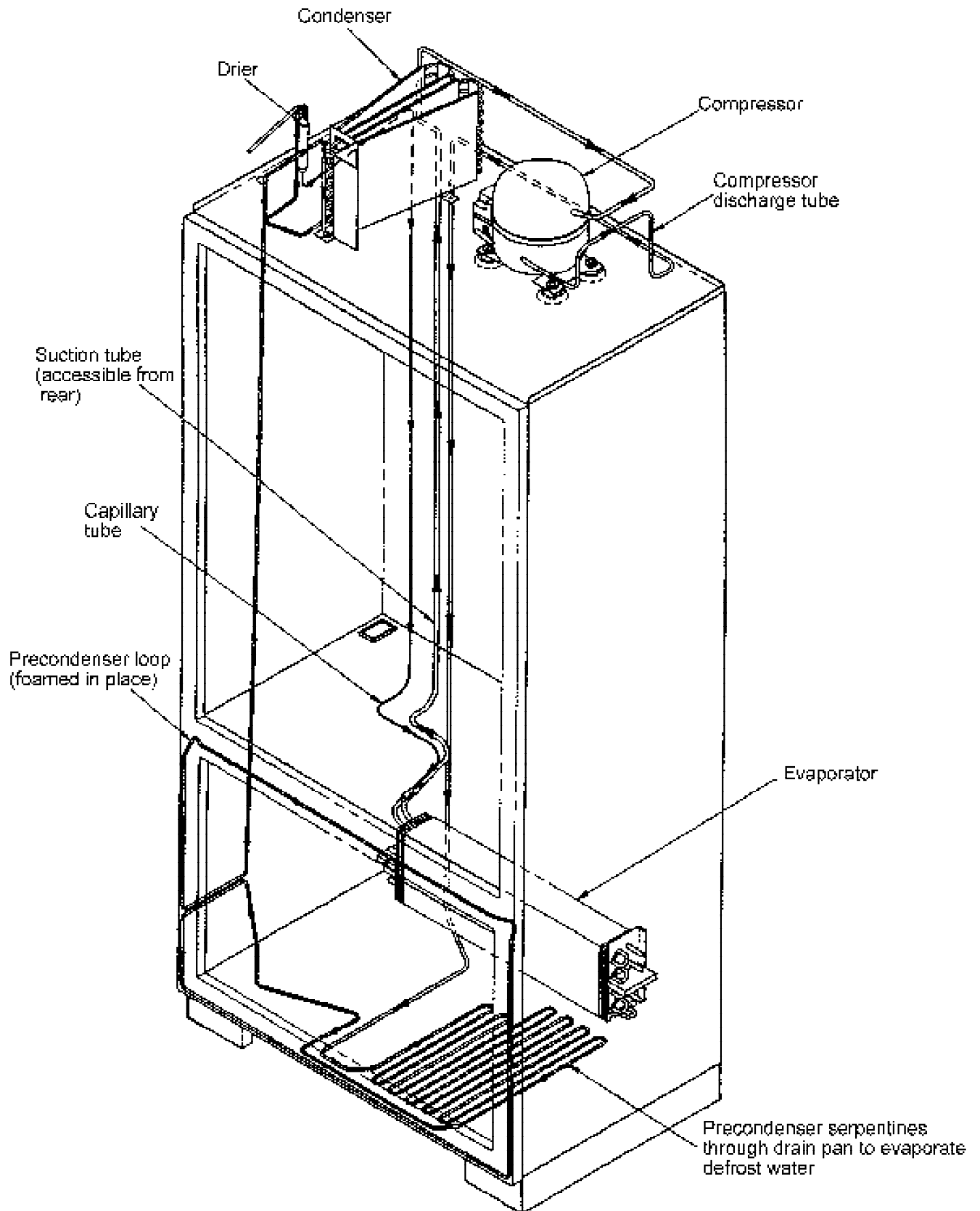
To avoid severe personal injury or death from fire keep system free from contamination due to presence of air. Follow instructions exactly.

Before opening system evaporator coil must be at ambient temperature to minimize moisture infiltration into system.

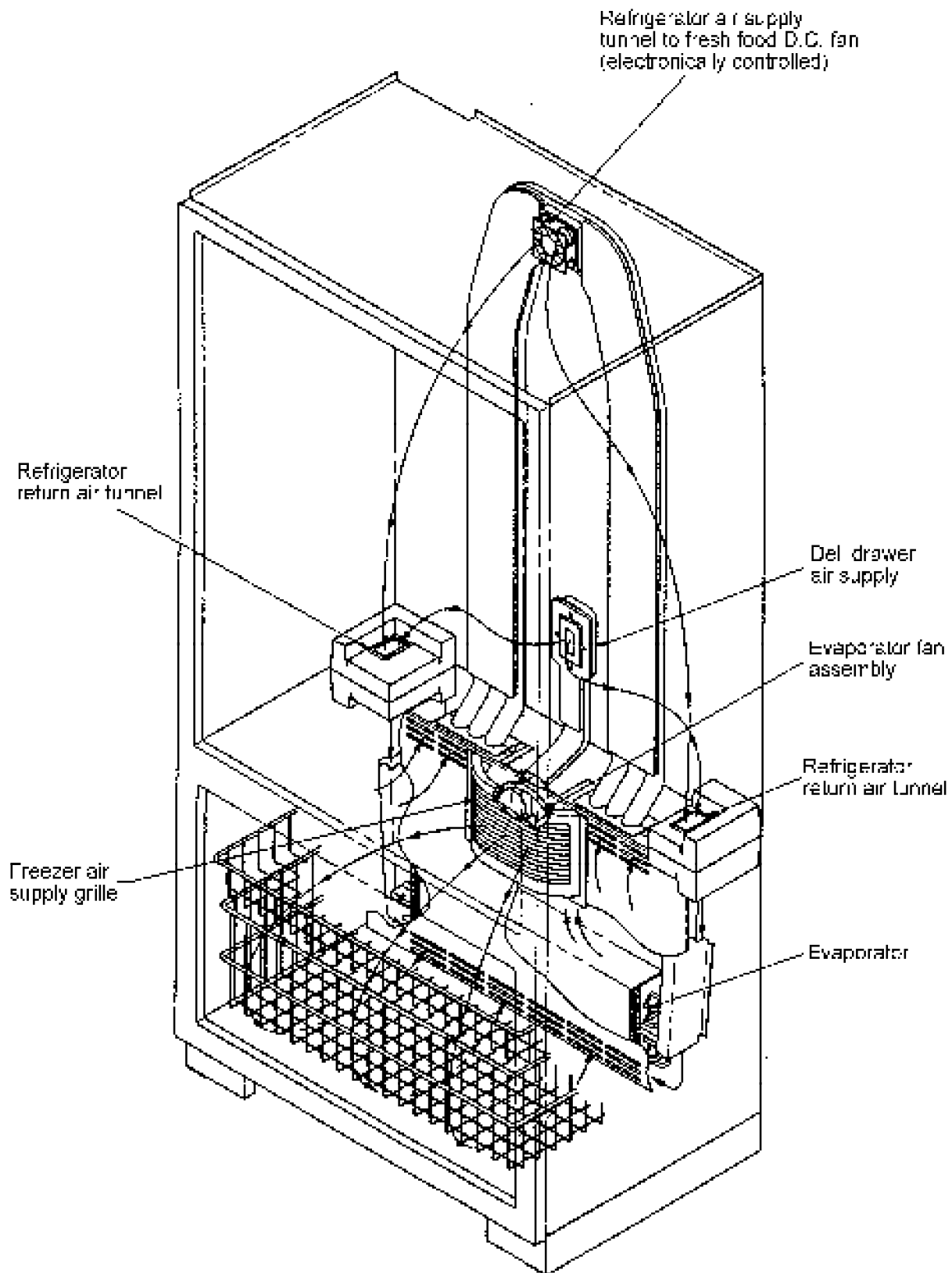
1. After capturing refrigerant, replacing drier and making any repairs, evacuate system from high side through drier/process tube and low side through compressor process tube simultaneously. Evacuation should not be done through line piercing valve but through I.D. opening of tubes.
2. With valves "C" and "F" closed to thermistor vacuum gauge and charging cylinder, open all other valves and start vacuum pump.
3. At approximately 29 inches of vacuum, open valve "C" to thermistor vacuum gauge and take micron reading.
4. Continue evacuating system until thermistor vacuum gauge registers 600 microns.
5. At 600 microns close valve "A" to vacuum pump to allow micron reading in system to balance. Micron level will rise. If in 2 minutes, micron level stabilizes at 1000 microns or below, system is ready for charging.
  - If micron rises above 1000 micron level and stabilizes, open valve "A" to vacuum pump and continue evacuating.
  - If micron reading rises rapidly and does not stabilize, a leak still exists in system. Close valve "A" to vacuum pump and "C" to thermistor vacuum gauge. Invert charging cylinder and open charging cylinder valve "F" to add partial charge for leak checking. With leak detector, check manifold connections and system for leaks. After locating leak, capture refrigerant charge, repair leak, and begin at step 1.
6. Once system is ready to charge, close valve "A" (vacuum pump), "C" (thermistor vacuum gauge), and "E" (low side manifold gauge).
7. Check serial plate for correct charge and set scale on dial-a-charge cylinder for corresponding HFC134a pressure reading. Do not use captured or recycled refrigerant in Amana® refrigerators. *Use of captured or recycled refrigerant voids any warranty.*
8. Open valve "F" to charging cylinder and let exact amount of refrigerant out of cylinder. Close valve. Low side gauge pressure should rise shortly after opening charging cylinder valve as system pressure equalizes through capillary tube. If pressure does not equalize, a restriction typically exists at capillary/drier braze joint.
9. If no restriction exists, open valve "E" (low side manifold gauge) and pinch off high side drier process tube.
10. Start compressor and draw remaining refrigerant in charging hoses and manifold into compressor through compressor process tube. To check high side pinch-off drier process tube, close valve "D" (high side gauge). If pinch-off is not leaking, high side pressure will not rise. If high side pressure gauge shows an increase, repeat high side pinch-off and open valve "D". Repeat until high side pinch-off no longer leaks.
11. Pinch-off compressor process tube and remove charging hose. Braze stub closed while compressor is operating.
12. Unplug refrigerator from electrical outlet. Remove charging hose and braze high side drier process tube closed.



# Refrigerant Flow

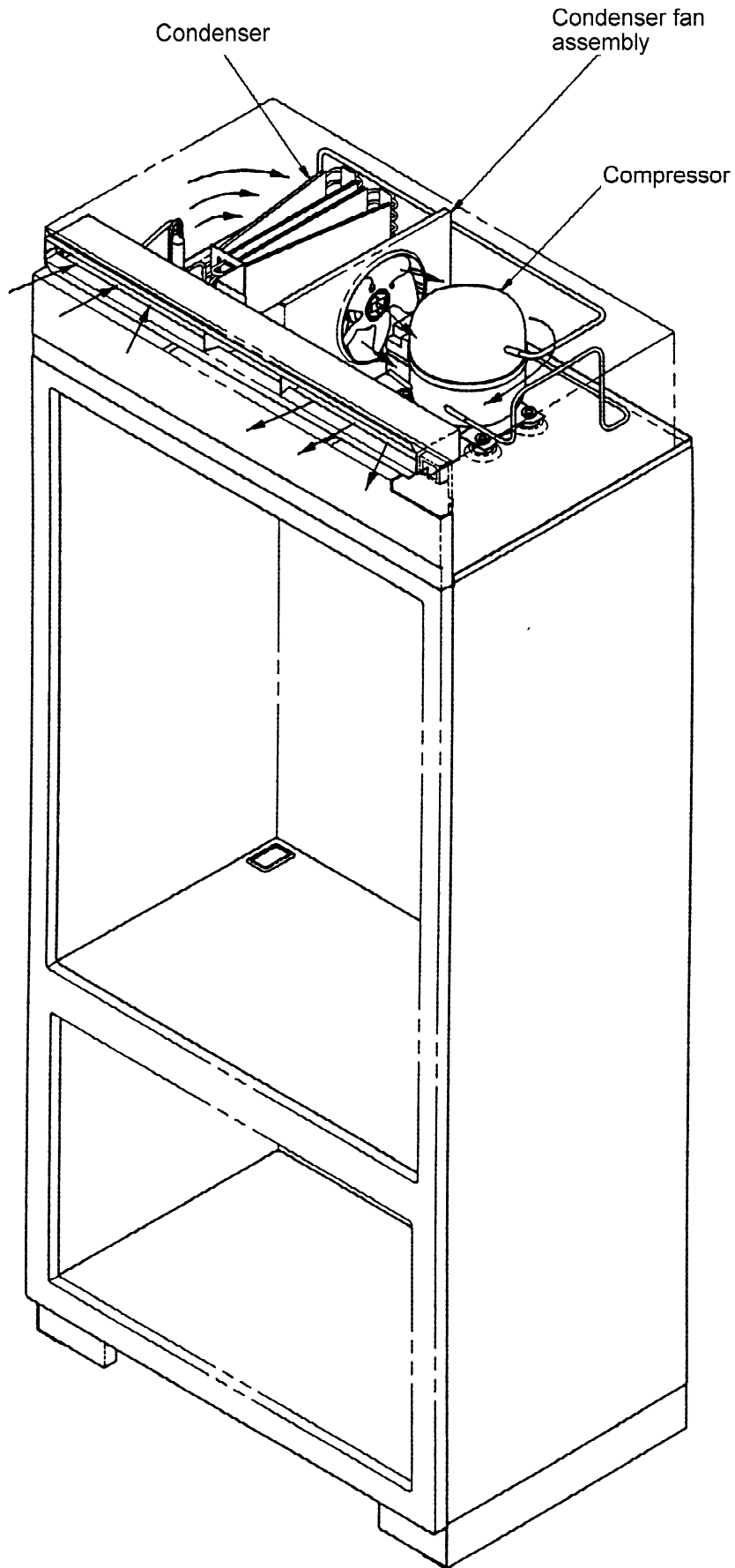


# Air Flow

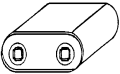

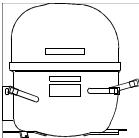


# Machine Compartment Assembly


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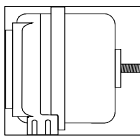
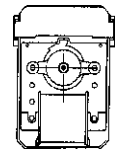
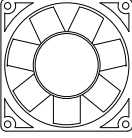
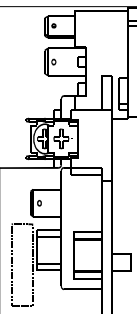
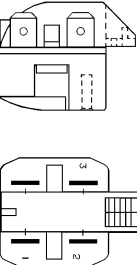
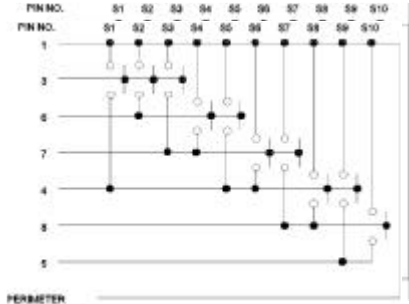
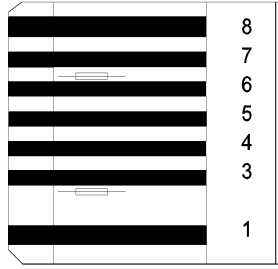
# Component Function and Testing

<p>Capacitor</p> 	<p>Run capacitor connects to relay terminal.</p>	<div style="border: 1px solid black; padding: 5px;"> <p><b>WARNING</b>   To avoid electrical shock which can cause severe personal injury or death, discharge capacitor through a resistor before handling.</p> </div> <ol style="list-style-type: none"> <li>1. Disconnect power to refrigerator.</li> <li>2. Remove capacitor and disconnect capacitor wires.</li> <li>3. Discharge capacitor by shorting across terminals with a resistor for 1 minute.</li> <li>4. Check resistance across capacitor terminals with ohmmeter set on "X1K" scale.             <ul style="list-style-type: none"> <li>• Needle should jump towards 0 ohms and quickly move back to infinity.</li> <li>• If needle does not move, the capacitor is open.</li> <li>• If needle reads a constant value at or near 0 ohms, the capacitor is shorted.</li> <li>• If needle jumps towards 0 and then moves back to a constant high resistance (not infinity), the capacitor has a high resistance leak.</li> </ul> </li> </ol>
<p>Capillary tube</p>	<p>Capillary is sized in diameter and length to feed proper amount of refrigerant to evaporator.</p> <p>Capillary is soldered to suction line to transfer heat from capillary and add additional superheat to gas refrigerant in compressor suction line.</p> <p>Capillary discharges into evaporator.</p>	
<p>Compressor</p> 	<p>When compressor electrical circuit is energized, the start winding current causes PTC relay to heat. After an amount of starting time the start winding circuit turns off. PTC relay will switch off the start winding circuit even though compressor has not started (as when attempting to restart after momentary power interruption).</p> <p>With "open" PTC relay, compressor will not start because there is little or no current to start windings. Overload protector will open due to high locked rotor run winding current.</p> <p>With "shorted" PTC relay or capacitor, compressor will start and overload protector will quickly open due to high current of combined run and start windings.</p> <p>With open or weak capacitor, the compressor will start and run as normal but will consume more energy.</p>	<p>Check for resistance between:</p> <p>Terminals "S" &amp; "C"          Terminals "R" &amp; "C"</p> <p>Ground Test          Disconnect power to refrigerator. Remove compressor leads and use an ohmmeter set on highest scale. Touch 1 lead to compressor body (clean point of contact) and the other probe to each compressor terminal. If a reading is obtained, compressor is grounded and must be replaced.</p> <p>Operation Test          If motor winding tests fail to show cause for failure:</p> <ol style="list-style-type: none"> <li>1. Disconnect power to refrigerator. Wire a test cord to disconnect switch.</li> <li>2. Place time delayed fuse, with U.L. rating equal to amp rating of motor, in test cord socket.</li> <li>3. Remove overload and relay.</li> <li>4. Connect start, common, and run leads of test cord on appropriate terminals of compressor.</li> <li>5. Attach capacitor leads of test cord together. If capacitor is used, attach capacitor leads to a good capacitor of same capacity.</li> <li>6. Plug test cord into volt-watt meter to determine start and run wattage as well as check for low voltage which can also be a source of trouble.</li> <li>7. With power to volt-meter, press start cord switch and release. If compressor motor starts and draws normal wattage compressor is okay and trouble is in capacitor, relay, overload, freezer temperature control, adaptive defrost control, or elsewhere.</li> </ol>

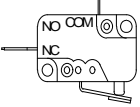
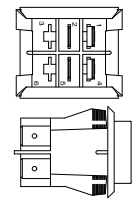
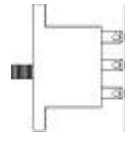
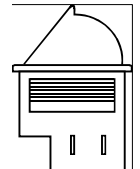
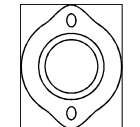
# Component Function and Testing

<p>Condenser</p>	<p>Condenser is a tube and wire construction located in compressor compartment. Condenser is on high pressure discharge side of compressor.</p> <p>Refrigerant flows from compressor into a pre-condenser serpentine below drain pan to evaporate defrost water. From serpentine, refrigerant flows into pre-condenser loop (Yoder loop) foamed around freezer door opening to help control external condensation around freezer door and on flange. Higher pressure refrigerant gas is routed to condenser where as gas temperature is reduced, gas condenses into high pressure liquid state. Heat transfer takes place because discharged gas is at higher temperature than air that is passing over condenser.</p> <p>Condenser is air cooled by fan motor. It is very important that adequate air flow over condenser is maintained. If efficiency of heat transfer from condenser to surrounding air is impaired, condensing temperature becomes higher. Higher temperature liquid means less heat will be removed during boiling in evaporation. This is indicated by higher than normal head pressures, long run time, and high wattage. Remove any lint, dust accumulation, etc. that would restrict normal air movement throughout the condenser.</p>	<ul style="list-style-type: none"> <li>Leaks in condenser can usually be detected by using an electronic leak detector or soap solution. Look for signs of compressor oil when checking for leaks. A certain amount of compressor oil is circulated with refrigerant.</li> <li>Leaks in post condenser loop are rare as loop is a 1 piece copper tube.</li> <li>In cases of minute leaks it may be necessary to separate condenser from rest of refrigeration system and pressurize condenser up to a maximum of 235 PSI with a refrigerant and dry nitrogen combination.</li> </ul> <div style="border: 1px solid black; padding: 5px;"> <p><b>WARNING</b></p> <p>To avoid severe personal injury or death observe the following:</p> <ul style="list-style-type: none"> <li>Protect against a sudden eruption if high pressures are required for leak checking.</li> <li>High pressure compressed cases should never be used in refrigeration systems without a reliable pressure regulator and pressure relief valve in the lines.</li> </ul> </div>
<p>Drier</p> 	<p>Desiccant (20) 8 X 12 4AXH - 7 M.S. - Grams</p>	<p>Drier is placed at P.C. loop outlet and passes liquified refrigerant to capillary.</p> <p>Drier must be changed whenever sealed refrigeration system is opened.</p> <p>Drier used in R12 sealed system is not interchangeable with drier used in R134a sealed system. Replace drier with part #B2150504.</p>
<p>Evaporator</p>	<p>Inner volume of evaporator allows liquified refrigerant discharged from capillary to expand into refrigerant gas.</p> <p>Act of expansion cools evaporate tube and fin temperature to approximately -20°F, transferring heat from freezer section to refrigerant.</p> <p>Passing through suction line to compressor, the refrigerant picks up superheat (a relationship between pressure and temperature that assures complete vaporization of liquid refrigerant) as result of capillary being soldered to suction line.</p> <p>Refrigerant gas is pulled through suction line by compressor to complete refrigerant cycle.</p>	<p>Leaks in evaporator can usually be detected by the use of electronic leak detector or soap solution. Compressor oil is circulated with refrigerant so look for oil when checking for leaks.</p> <p>For minute leaks separate condenser from rest of refrigeration system and pressurize condenser up to a maximum of 140 PSI with a refrigerant and dry nitrogen combination. Recheck for leaks.</p>
<p>Heater, evaporator (defrost)</p>	<p>See "Electronic Functional Description, Adaptive Defrost Circuitry"</p>	<p>Check resistance across heater.</p> <p>Check defrost system by thermocoupling defrost thermostat and plugging refrigerator in wattmeter. Force into defrost mode. Wattmeter should read specified watts (according to tech sheet) ± 20 watts. When defrost thermostat reaches specified temperature (according to tech sheet) ± 5°F., thermostat should interrupt power to heater.</p>
<p>Ice Maker</p>	<p>See "Ice Maker" section for service information.</p>	

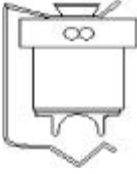
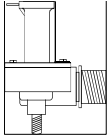
# Component Function and Testing

<p>Motor, condenser psc</p> 	<p>Condenser fan moves cooling air across condenser coil and compressor body.</p> <p>The condenser motor is in a parallel circuit with the compressor.</p>	<p>Check resistance across coil.</p>																						
<p>Motor, ecm evaporator fan</p> 	<p>Evaporator motor moves air across evaporator coil and throughout refrigerator.</p> <p>Evaporator fan motor is in a parallel circuit with compressor, with a delay for warm coil conditions.</p>	<p>Check resistance from ground connector solder. Trace to motor frame must not exceed .05 ohms. Check power at connector to evaporator motor.</p>																						
<p>Motor, refrigerator fan</p> 	<p>Refrigerator fan circulates cold air into refrigerator compartment.</p> <p>The refrigerator fan motor is in a series circuit with the semiconductor switch.</p>	<p>See "Refrigeration and Defrost Component Checks Made at High Voltage Board" section for D.C. voltage check at high voltage board. Check for voltage at motor also.</p>																						
<p>Overload</p> 	<p>Overload is a temperature and current sensing type.</p> <p>Overload opens when sensing a high current or high compressor temperature.</p> <p>After overload opens, overload can require up to 2 hours to reset, depending on ambient temperature and residual heat load in compressor.</p>	<ol style="list-style-type: none"> <li>1. Disconnect power to refrigerator.</li> <li>2. Remove relay cover and pull relay off compressor.</li> <li>3. Pull overload protector off compressor common terminal.</li> <li>3. With ohmmeter, check resistance between 1/4" male terminal and female pin receptacle terminal which pushes onto compressor common terminal. At ambient temperature, overload protector should have less than 1 ohm resistance. An open overload protector will have infinite resistance.</li> </ol>																						
<p>Relay, PTC</p> 	<p>When voltage is connected and PTC is cooled, current passes through PTC to the start winding.</p> <p>After a short time, current will have heated the resistor in PTC and resistance will rise. This blocks current flow through PTC.</p> <p>Start winding remains in the circuit through the run capacitor.</p> <p>Solid state relay plugs directly on compressor start and run terminals. Relay terminals 2 and 3 are connected within relay. Run capacitor is connected to relay terminal 3. The L2 side of 120 VAC power is connected to relay terminal 2.</p>	<p>With power off check resistance.</p> <p>Across terminals 2 &amp; 3:          Normal = 3 to 12 ohms          Shorted = 0 ohms          Open = infinite ohms</p>																						
<p>Switch, keyboard</p>	 <p>PERMETER STATIC GUARD</p>	 <table border="1" data-bbox="1177 1619 1425 1934"> <thead> <tr> <th>Switch Functions</th> <th>Continuity Test</th> </tr> </thead> <tbody> <tr> <td>Display On</td> <td>1 and 3</td> </tr> <tr> <td>Freezer Temp</td> <td>3 and 6</td> </tr> <tr> <td>Ref Temp</td> <td>3 and 7</td> </tr> <tr> <td>Warmer</td> <td>6 and 7</td> </tr> <tr> <td>Colder</td> <td>4 and 6</td> </tr> <tr> <td>Vacation</td> <td>4 and 7</td> </tr> <tr> <td>Max Ref</td> <td>7 and 8</td> </tr> <tr> <td>Max Frz</td> <td>4 and 8</td> </tr> <tr> <td>Alarm Off</td> <td>4 and 5</td> </tr> <tr> <td>Display Off</td> <td>5 and 8</td> </tr> </tbody> </table>	Switch Functions	Continuity Test	Display On	1 and 3	Freezer Temp	3 and 6	Ref Temp	3 and 7	Warmer	6 and 7	Colder	4 and 6	Vacation	4 and 7	Max Ref	7 and 8	Max Frz	4 and 8	Alarm Off	4 and 5	Display Off	5 and 8
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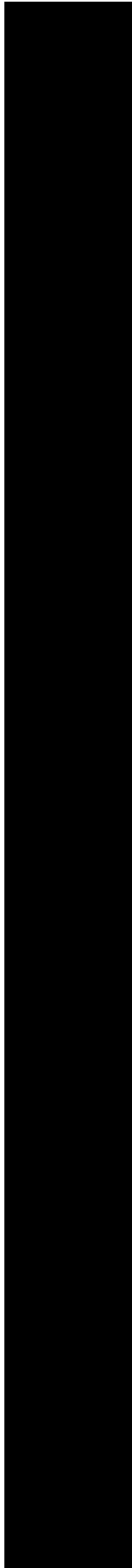
# Component Function and Testing

<p>Switch, icemaker interlock, no</p>	<p>Opens circuit to icemaker when freezer door is open to prevent cycle while door is open.</p>	<p>Check resistance across terminals with:          Switch arm depressed      Closed          Switch arm not depressed    Open</p>
<p>Switch, light nc</p> 	<p>Completes circuit to turn on light when refrigerator or freezer door is opened.</p>	<p>Check resistance across terminals with:          Switch arm depressed      Open          Switch arm not depressed    Closed</p>
<p>Switch, power DPST</p> 	<p>Shuts off all power to refrigerator when switch is off (open). Refrigerator is shipped with switch on.</p>	<p>Check resistance across terminals with:          Switch off (open)      no continuity between 1 and 2, 4 and 5          Switch on (closed)    continuity between 1 and 2, 4 and 5</p>
<p>Switch, show room, SPDT</p>	<p>On position completes power to lights and display only. Off position completes circuit for normal operation.</p>	<p>Check resistance at test points:          Show room operation - E3, at high voltage board to pin 3 (blue/white wire) at high voltage wire harness.           Unit run - E9, at high voltage board to pin 3 (blue/white wire) at high voltage wire harness.</p>
<p>Switch, slide</p> 		<p>Check resistance across terminals          Switch up              Middle terminal to top terminal      0 Ohms              Middle terminal to lower terminal    Infinite Ohms          Switch down              Middle terminal to top terminal      Infinite Ohms              Middle terminal to lower terminal</p>
<p>Switch, light</p> 	<p>Completes light circuit when freezer door is open.</p>	<p>Check resistance across terminals with:          Switch arm depressed      Open          Switch arm not depressed    Closed</p>
<p>Thermistor</p> 	<p>Senses temperatures within refrigerator and freezer compartments</p>	<p>See "Electronic Function Description, Temperature Control Operation" for resistance values for a given temperature.</p>

# Component Function and Testing

<p>Thermostat</p> 	<p>Thermostat is in a series circuit between high voltage board and defrost heater.</p> <p>Opens and breaks circuit when thermostat senses preset temperature above freezing.</p> <p>After defrost thermostat opens, thermostat remains open until end of defrost cycle and refrigerator starts cooling again and defrost thermostat senses a preset temperature generally below freezing.</p> <p>At this temperature, defrost thermostat resets (closes) for next defrost cycle.</p>	<p>Check resistance across terminals, or for power at thermostat or high voltage board A/C output.</p>
<p>Valve, water</p> 	<p>Valve control water flow to ice maker.</p>	<p>Check resistance across coil windings.</p>





# Electronic Functional Description

## Electronic Testing Mode

### Forced Defrost Activation

1. Press *Display On* pad to activate control panel.
2. Simultaneously press and hold *Max Ref* pad and *Display Off* pad for 3 seconds.

### Forced Compressor Activation

1. Press *Display On* pad to activate control panel.
2. Simultaneously press and hold *Max Frz* pad and *Display Off* pad for 3 seconds.

### Open Thermistor Detect

If freezer or refrigerator thermistor circuit opens, wiring to thermistor is open or low voltage board failed. Freezer or refrigerator indicator light will glow and temperature indicators 4 through 7 will sequence one at a time until *Alarm Off* pad is pressed.



1. Check for line voltage on terminal E7 on high voltage board. With refrigerator door open there should be 115 VAC, with refrigerator door closed there should be approximately 0 VAC. If voltage does not change with light switch and light switch is turning light off and on, red/white wire is broken between switch and high voltage board.
2. Check for voltage on terminal 7 on pin connector of high voltage board. Output voltage should toggle with toggling of light switch. If output voltage does not toggle, high voltage board needs replacing.
3. If terminal 7 on pin connector on high voltage board changes with opening and closing of door, orange wire in low voltage harness is broken (check for continuity between pin 7 on high voltage pin connector and pin 10 of pin connector on low voltage board) or low voltage board needs replacing.



1. Check for line voltage on terminal E8 on high voltage board. With freezer door open there should be 115 VAC, with door closed there should be approximately 0 VAC. If voltage does not change with light switch and light switch is turning light off and on, violet/white wire is broken between switch and high voltage board.

2. Check for voltage on terminal 7 on pin connector of high voltage board. Output voltage should toggle with toggling of light switch. If it does not toggle high voltage board needs replacing.
3. If terminal 7 on pin connector on high voltage board changes with opening and closing of door, orange wire in low voltage harness is broken (check for continuity between pin 7 on high voltage pin connector and pin 10 of pin connector on low voltage board) or low voltage board needs replacing.

## Keyboard Functions

### Display On Pad

1. Activate control panel by pressing *Display On* pad. All other pads, except for *Alarm Off* remain inactive until *Display On* pad is pressed. Once activated, pads remain programmable for at least 10 minutes.
2. Entry tone indicates a pad was pressed, command was read, and accepted. Deactivate entry tone by pressing and holding *Display On* pad for 3 to 5 seconds. Three short beeps indicate instructions were accepted. Activate entry tone by pressing and holding *Display On* pad for 3 to 5 seconds.
3. Activate temperature setting area of display by pressing *Display On* pad.
4. Deactivate flashing lights (power up alarm) after refrigerator is first plugged in or after power outage by pressing *Display On* pad.

### Warmer Pad

1. Raise temperature by pressing *Warmer* pad. Temperature level raises one bar at a time. If entry tone is active, beep will sound at each bar until top level is reached.
2. If pad is pressed continually, temperature level will raise at accelerated rate.
3. Activate temperature setting area of display by pressing *Warmer* pad.

### Colder Pad

1. Lower temperature by pressing *Colder* pad. Temperature level lowers one bar at a time. If entry tone is active, beep will sound at each bar until bottom level is reached.
2. If pad is pressed continually, temperature level will lower at accelerated rate.
3. Activate temperature setting area of display by pressing *Colder* pad.

# Electronic Functional Description

## Freezer Temp Pad

1. Activate freezer mode by pressing *Freezer Temp* pad. Freezer indicator light will glow. Freezer temperature will be displayed. Factory setting is "5".
2. Activate temperature setting area of display by pressing *Freezer Temp* pad.

## Ref Temp Pad

1. Activate refrigerator mode by pressing *Ref Temp* pad. Refrigerator indicator light will glow. Refrigerator set temperature will be displayed. Factory setting is "5".
2. Activate temperature setting area of display by pressing *Ref Temp* pad.

## Vacation Pad

Vacation mode defrosts refrigerator less often during extended non-use periods. Refrigerator will automatically go into vacation mode during extended non-use periods. Vacation pad is a feature reminder. Pressing *Vacation* pad does not send refrigerator into vacation mode or cause light to glow.

## Max Ref Pad

Activate max ref mode by pressing *Max Ref* pad. Max Ref indicator light will glow. Refrigerator temperature will go to level 9 (coldest) for 10 hours or until *Max Ref* pad is pressed again. To adjust Max Ref time see "Mode B Functions, Max Ref Run Time Duration Adjustment".

## Max Frz Pad

Activate Max Frz mode by pressing *Max Frz* pad. Max Frz indicator light will glow. Freezer temperature will go to level 9 (coldest) for 24 hours or until *Max Frz* pad is pressed. To adjust Max Frz time see "Mode B Functions, Max Frz Run Time Duration Adjustment".

## Alarm Off Pad

1. Deactivate high temperature and door open alarm by pressing *Alarm Off* pad.
2. Deactivate door open alarm by pressing *Alarm Off* pad for 3 seconds. Activate door open alarm by pressing *Alarm Off* pad for 3 seconds.
3. Deactivate flashing lights (power up alarm) after refrigerator is first plugged in or after power outage by pressing *Alarm Off* pad.

## Display Off Pad

Deactivate temperature indication area of display by pressing *Display Off* pad.

## Door Open Alarm

1. Door open alarm sounds and indicator light blinks if refrigerator or freezer door is open for more than 3 minutes. Deactivate door open alarm by pressing *Alarm Off* pad or by closing refrigerator or freezer door.
2. Door alarm delay can be adjusted.

## High Temp Alarm

High temperature alarm sounds and indicator light glows if freezer temperature goes above 15°F (-9.5°C) for 2 hours or refrigerator temperature goes above 60°F (15.5°C) for 2 hours. Audio alarm stops if temperature falls below critical temperature and high temperature condition was activated.

- Deactivate alarm by pressing *Alarm Off* pad.

## Temperature Control Operation

- For a temperature setting, outputs will be turned off/on based upon cutin/cutout temperatures, determined by resistance levels of freezer and refrigerator thermistors.

## Refrigerator and Freezer Thermistor Part # C8983701

Temp °F (°C)	Resistanc Ohms	Temp °F (°C)	Resistanc Ohms
-20 (-29)	495600	36 (2)	87510
-15 (-26)	418200	38 (3)	82740
-9 (-23)	354000	39 (4)	78300
-6 (-21)	300600	43 (6)	74100
-4 (-18)	256200	45 (7)	70170
5 (-15)	218850	46 (8)	66450
10 (-12)	187470	48 (9)	62970
16 (-9)	161040	50 (10)	59670
19 (-7)	138690	55 (13)	52290
25 (-4)	119760	61 (16)	45900

# Electronic Functional Description

As the temperature decreases, resistance increases. As the temperature increases, resistance decreases. An open thermistor or thermistor circuit will result in failure of refrigerator to cool. Shorted thermistor will result in refrigerator to run 100 percent of time except for defrost.

- Freezer temperature setting and thermistor value will determine if compressor/condenser fan and evaporator fan switches are open or closed. Compressor/condenser fan switch must be open for 6 minutes before switch can close again (compressor dwell time).
- Refrigerator temperature setting and thermistor value will determine if fresh food fan switch is to be open or closed.
- Cutout and cutin temperature values must be reached and maintained for 15 seconds before output state will change (digital delay).

## Factory set freezer and refrigerator settings Part # 12067101

Frozen Food	Fresh Food	Level
Cut-out F° (C°) ± 1.5°	Cut-out F° (C°) ± 1.5°	
-10 (-23)	29 (-2)	9
-8 (-22)	31 (-0.6)	8
-6 (-21)	33 (-0.6)	7
-5 (-21)	34 (1)	6
-4 (-20)	35 (2)	5
-3 (-19)	36 (2)	4
-2 (-19)	37 (3)	3
0 (-18)	39 (4)	2
2 (-17)	41 (5)	1
-10 (-23)	----	Max Ref
----	29 (-2)	Max Frz

- Refrigerator or freezer control calibration can be adjusted.

## Adaptive Defrost Operation

- Defrost occurs after predetermined length of compressor run hours. Compressor run time between defrost changes or adapts, depending upon recent history of defrost lengths (time it takes for defrost terminator to open once defrost heater has been turned on). Defrost terminator opens at 55°F (13°C) and closes at 20°F (-7°C).
- Compressor run time between defrost (CRTD) will be one of 3 values under normal operation: CRTD (1), or CRTD (2) or CRTD (3) defined as 8, 12, and 16 hour lengths. If defrost length is low (DT-LO defined as 21 minutes) indicating small frost load CRTD for next defrost cycle is advanced to next level. If defrost length is high (DI - HI defined as 24 minutes) indicating large frost load CRTD for next defrost cycle is lowered to next level. Initial value at power CRTD (0) is 4 hours.
- Vacation mode CRTD equals 96 hours. Vacation mode CRTD is interrupted with door openings. Defrost interval will revert back to the previous interval before Vacation mode.
- Six minute dwell time occurs after defrost terminator opens before compressor and condenser fan motor will operate. Ten minute dwell time occurs after defrost terminator opens before evaporator fan motor will operate.
- Conventional defrost can be selected.

## Power Up Condition

Nine temperature indicators will flash after refrigerator is powered up. Refrigerator begins normal operation immediately, except for 6 minute dwell before energizing compressor circuit. Indicator lights will stop flashing after *Display On* or *Alarm Off* pads are pressed.

## EEPROM Update in Control Memory

EEPROM is permanent programmable memory device. Once function is changed and stored in EEPROM, function is stored permanently and will not be effected by power loss.

- After keyboard programming changes have been made to refrigerator and freezer temperatures, entry tone, and door audio alarm, status is permanently stored in EEPROM after keyboard is disabled.

## Accessing Program Mode

1. Open refrigerator door.
2. Press *Display On* pad.
3. Press *Vacation* pad.
4. Press following pads in sequence within 6 seconds: *Max Ref*, *Max Frz*, *Max Ref*, *Max Frz*.
5. When access is granted, audio annunciator will sound 3 times and control will be in program Mode A.

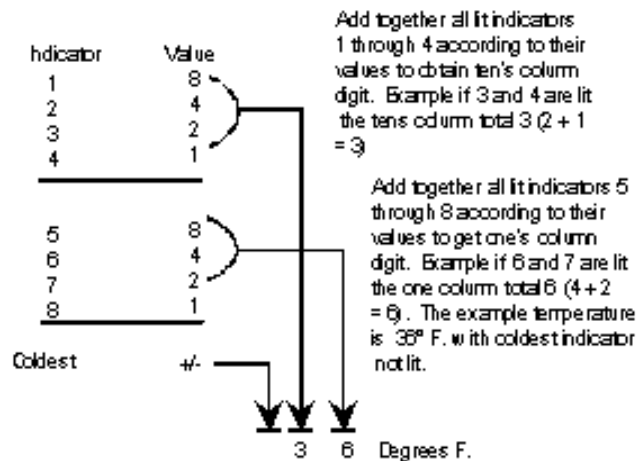
# Electronic Functional Description

## Operation

Program mode has 2 submodes, Mode A and Mode B. Access to either mode is toggled with *Display On* pad. Entry in program Mode A is indicated with unmarked light glowing. Control is in program Mode B if light does not glow.

## Mode A Functions - Freezer or Refrigerator Temperature

1. Choose freezer thermistor temperature display by pressing *Freezer Temp* pad. Freezer temp indicator light will glow. Temperature display will show thermistor temperature in binary coded decimal (BCD) format. Indicator lights 1 through 4 represent tens digit with 1 being most significant bit. Indicator lights 5 through 8 represent ones digit with 5 being the most significant bit. Indicator light 9 (coldest is + - sign; light glows signifying negative value).
2. Choose refrigerator thermistor temperature display by pressing *Ref Temp* pad. Refrigerator temperature indicator light will glow. Temperature display will show thermistor temperature in BCD as described above.



Electronic control value column is calculated in units of °F. Conversion is  $^{\circ}\text{C} = (^{\circ}\text{F} - 32)/1.8$ .

## Mode B Functions

1. Door alarm delay can be adjusted from keyboard when in this mode. Press *Alarm Off* pad, door open indicator will glow. One temperature indicator should glow indicating present delay time setting. Pressing *Warmer* pad decreases delay by 1 and pressing *Colder* pad increases delay by 1. Delay times selected go from 1 to 9 minutes in 1 minute increments. 1 being 1 minute and 9 being 9 minutes. Default door audio delay is 3 minutes.
2. Max Ref run time duration adjustment can be

performed in Mode B by pressing *Max Ref* pad. *Max Ref* light will glow. One temperature indicator should glow indicating present Max Ref run time duration. Pressing *Warmer* pad decreases Max Ref run time by 2 hours and pressing *Colder* pad increases by 2 hours. Times are from 6 hours (indicated by 1 temperature indicator) to 22 hours (indicated by coldest temperature indicator). Default Max Ref run time is 10 hours.

3. Max Frz run time duration adjustment can be performed by pressing *Max Frz* pad in Mode B. Max Frz indicator will glow. Adjustment process is same as items 1 and 2. Duration times are in increments of 4 hours, ranging from 8 hours. 1 setting to 40 hours at coldest setting. Default Max Frz run time duration is 24 hours.
4. Refrigerator temperature offset is calibration adjustment. Temperatures at which refrigerator cuts-in and cuts-out are shifted by amount offset is set. Pressing *Ref Temp* pad while in Mode B causes refrigerator indicator to glow and 1 of 9 temperature indicators to glow. Pressing *Warmer* pad or *Colder* pad moves offset up or down range. Temperature indicators and offsets and what they imply are shown on chart below. The low voltage board freezer offset temperature is 0 and refrigerator offset temperature +2 from factory.
5. Enable freezer temperature offset by pressing *Freezer Temp* pad in Mode B. Freezer indicator will glow. Adjustment process, set point values, is identical to item 4.

INDICATOR	OFFSET
1	+8
2	+6
3	+4
4	+2
5	0
6	-2
7	-4
8	-6
Coldest	-8

# Electronic Functional Description

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6. Conventional/adaptive defrost mode can be selected by toggling *Vacation* pad while in Mode B. When vacation annunciator glows, adaptive defrost system has been selected. When vacation annunciator doesn't glow, conventional defrost system is used. Conventional defrost mode uses 8 hour CRTD value.
7. Automatic keyboard disable activated/deactivated is toggled in Mode B with *Display Off* pad. If high temperature indicator glows, keyboard will disable after 10 minutes. If high temperature indicator doesn't glow, keyboard is always enabled. Do not leave keyboard in a permanently enabled mode.
8. Forced defrost is activated by pressing and holding *Alarm Off* pad for 3 seconds. Defrost function will begin. Program changes will be saved permanently in EEPROM and program mode will exit to run mode.
9. Forced pulldown can be made in Mode B by pressing and holding *Max Frz* pad 3 seconds. Refrigeration function will begin. Program changes will be saved permanently EEPROM. Compressor, evaporator fan, damper heater, and condenser fan will come on.

## Exiting Program Mode

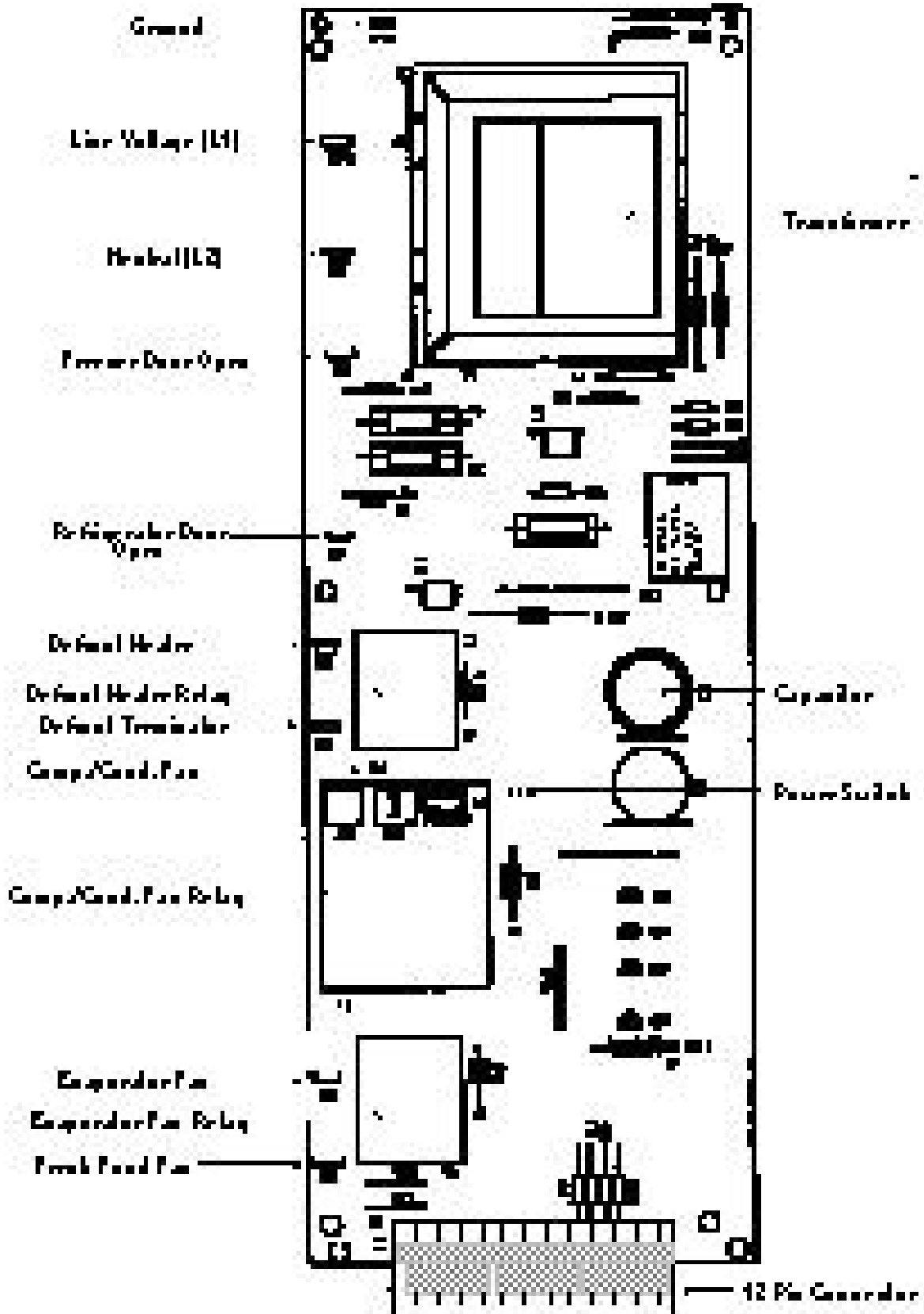
Deactivate program mode by pressing and holding *Display On* pad for 3 seconds. Any changes made while working in program mode will be saved and audio annunciator will beep 3 times. Program mode will be automatically exited if there is no key closure for 10 minutes. However, any changes made will *not* be saved permanently if program mode is exited in this manner.

# Electronic Functional Description



## WARNING

To avoid electrical shock which can cause severe personal injury or death, disconnect power to refrigerator using power switch before servicing. Wires removed during disassembly must be replaced on proper terminals to insure correct earthing and polarization. After servicing, reconnect power using power switch.



# Electronic Functional Description



## WARNING

To avoid electrical shock which can cause severe personal injury or death, disconnect power to refrigerator using power switch before servicing. Wires removed during disassembly must be replaced on proper terminals to insure correct earthing and polarization. After servicing, reconnect power using power switch.

## Refrigeration and Defrost Component Checks Made at High Voltage Board

Low voltage board input	W1 to D11	approximately	-25 VDC
High voltage board input	E10 to E9 (Neutral) or ground	approximately	120 VAC
Compressor/condenser fan motor	“ON” = E4 to E9 (Neutral) ground “OFF” = E4 to E9 (Neutral) or ground	approximately	120 VAC
Compressor/condenser fan motor relay	“CLOSED” = R7 to ground “OPEN” = R7 to ground	approximately	-11 VDC -25 VDC
Evaporator fan motor relay	“CLOSED” = R8 to ground “OPEN” = R8 to ground	approximately	-11 VDC -25 VDC
Evaporator fan motor	“ON” = E2 to E9 (Neutral) or ground “OFF” = E2 to E9 (Neutral) or ground	approximately	120 VAC 0 VAC
Defrost heater	“ON” = E6 to E9 (Neutral) or ground “OFF” = E6 to E9 (Neutral) or ground	approximately	120 VAC 0 VAC
Defrost heater relay	“CLOSED” = R9 to ground “OPEN” = R9 to ground	approximately	-11 VDC -25 VDC
Defrost terminator	“CLOSED” = E5 to E9 (Neutral) or ground “OPEN” = E5 to E9 (Neutral) or ground	approximately	120 VAC 0 VAC
Fresh food fan output voltage	“ON” = E1 to ground	approximately	-25 VDC
High voltage board to fresh food fan	“OFF” = E1 to ground		0 VDC
Fresh food fan input voltage	“ON” = R10 to ground	approximately	-11 VDC
Signal to high voltage board from low voltage board	“OFF” = R10 to ground	approximately	-25 VDC
Filament voltage at pins 11 and 12 = less than 5 VAC			



# Electronic Functional Description

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## Circuitry

Refer to "Technical Data Sheet", part #12074201, for Wiring Schematic.

### Freezer Compartment Refrigeration Cycle Circuitry

As freezer thermistor warms, resistance lessens, allowing low voltage signal to be sent to electronic control. In turn, 2 low voltage signals are sent by electronic control. One to compressor relay coil (C1) and another to evaporator fan relay coil (F1). With both relay coils energized and contacts closed, high voltage circuits to compressor, condenser fan motor, and evaporator fan motor are complete.

As thermistor cools during refrigeration cycle, resistance through thermistor increases, blocking low voltage signal to electronic control, interrupting the cycle.

### Fresh Food Compartment Refrigeration Cycle Circuitry

As fresh food thermistor warms, resistance lessens, allowing low voltage signal to be sent to electronic control. In turn, electronic control sends low voltage signal to 24 VDC fresh food fan.

When fresh food fan motor operates, freezer air is circulated into fresh food compartment. As fresh food thermistor cools, resistance increases, blocking low voltage signal to electronic control. In turn, electronic control interrupts the signal to fresh food fan motor.

### Fresh Food and Freezer Compartment Refrigeration Cycle Circuitry

Many times cooling will be called for in both compartments as both freezer and fresh food thermistors warm. Resulting is electronic control signaling for compressor, condenser fan motor, evaporator fan motor, and 24 VDC fresh food fan to operate. Once freezer thermistor has been cooled sufficiently to block the signal to electronic control, the compressor, condenser fan motor, and evaporator fan motor will shut down. However, fresh food fan motor will continue to function until fresh food thermistor cools and blocks the signal to electronic control.

If fresh food thermistor is cooled prior to freezer thermistor, the electronic control will interrupt the signal to the fresh food fan motor. The compressor, condenser fan motor, and evaporator fan motor will remain in operation through freezer thermistor.

### Adaptive Defrost Circuitry

After proper compressor run time (either 8, 12, or 16 hours), refrigeration cycle is interrupted and a low voltage signal is sent from electronic control to defrost relay coil (D1 DEF). Powering of relay coil closes relay contact (D1), completing the high voltage circuit to the defrost heater through the closed defrost terminator (closes at 20°F (-7°C)). The isolator, part of high voltage PC board, recognizes the presence of line voltage to the defrost heater. Isolator sends a low voltage signal to electronic control which keeps count of the number of minutes defrost terminator remains closed (opens at 55°F (13°C)). Length of time defrost terminator remains closed, determines whether next defrost cycle advances by 4 hours of compressor run, stays at same interval or backs up by 4 hours of compressor run. If defrost terminator does not open before 30 minutes, defrost cycle will automatically be terminated by electronic control and refrigeration cycle will resume after a 6 minute dwell time.

**Important:** When *Showroom* switch is *off*, isolator sees line voltage. In turn, isolator keeps electronic controller from signaling compressor, condenser fan motor, and evaporator fan motor relay coils and keeps fresh food fan motor *off*.

# Door Disassembly Procedures

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## Air Discharge Grille

1. Remove center vane. Note placement of vane, curved/notches end first with curve up.
2. Remove 4 screws.
3. Pull grille assembly forward.

## Refrigerator Door

Two people are required for door removal.

1. Remove grille.
2. Turn power switch *off*.
3. Remove glide pin screw (torx #15M) from underside of top door hinge pin plate.
4. Loosen four 3/8" bolts enough to raise upper hinge plate to clear door hinge pin.
5. Lift door off of center hinge plate.
6. Remove door.

## Freezer Drawer and Basket

Pull forward and lift up.

## Door Stops

1. Remove air discharge grille.
2. Remove two #15 torx screws.

## Door Handles

1. Pry off screw trim. New trim will be required for reassembly.
2. Remove 6 screws on freezer door and 9 on refrigerator door, using a Phillips screwdriver.

## Door Gaskets

1. Gently pull gasket away from door liner.
2. Reinstall by beginning in bottom corner, working up. Align raised portion of gasket into liner track and apply pressure.

## Inner Door Liners and Outer Door Shells

Replace complete door assembly.

## Refrigerator Door Switch

1. Remove air discharge grille
2. Remove two #1 point Phillips screws with an off set ratchet tool.

# Cabinet Components Disassembly Procedures

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## Refrigerator Fan

1. Remove air grille caps.
2. Remove air grille by removing four 1/4" hex head screws.
3. Disconnect leads.
4. Remove fan by removing 1/4" hex head screws.

## Refrigerator Light Switch

An off set or ratchet #1 point Phillips driver is required.

1. Remove air discharge grille.
2. Remove 2 Phillips screws securing switch to top door hinge.

## Refrigerator Light Socket

1. Remove cover by removing four 1/4" hex head shoulder screws and sliding cover to rear.
2. Remove bulbs.
3. Remove four 1/4" hex head screws of light socket housing. Unclip front and drop down.
4. Pry socket through housing.
5. Remove wiring.

## Center Mullion

Center mullion is not replaceable.

## Freezer Switches and Thermistor Panel

1. Remove screw retaining assembly to evaporator cover.
2. Remove leads.
3. Pry switch assemblies from cover.
4. Remove thermistor by removing 2 screws.

## Freezer Evaporator Cover

1. Remove freezer shelf, freezer basket, ice service rack, icemaker, switch, and thermistor mounting plate.
2. Remove four 1/4" hex head evaporator cover mounting screws.
3. Push ice maker electrical block through opening in panel. Remove panel.

## Defrost Thermostat

1. Unclip thermostat from outlet on evaporator coil.
2. Disconnect orange and brown leads.

## Evaporator Defrost Heater

1. Complete steps 1-3 of evaporator coil removal.
2. Tip bottom of evaporator coil out.
3. Remove 2 clips.
4. Slide heater down and out from coil.
5. Unplug heater leads.

### Important

When reassembling, verify air diverter strips have been reinstalled properly.

## Evaporator

Reclaim refrigerant before proceeding with evaporator removal. To avoid refrigeration system contamination, do not leave refrigeration system or compressor open for more than 10 minutes.

1. Remove freezer switch and thermistor cover.
2. Remove evaporator cover.
3. Remove one 1/4" hex head screw from left side of coil and 2 from right side.
4. Remove defrost thermostat.
5. Remove defrost heater.
6. Shield interior from heat source and unbrazed suction tube at evaporator.
7. Score and break capillary tube at inlet to evaporator coil.

## Evaporator Fan Blade

1. See *Evaporator Fan Motor* steps 1-4.
2. Pull fan blade off motor shaft. When replacing fan blade, 1/2" of motor shaft should extend through hub of fan blade.

## Evaporator Fan Motor

1. Remove air discharge grille.
2. Remove two 5/16" hex head screws from evaporator fan motor mounting bracket.
3. Maneuver motor/bracket from housing.
4. Remove lead and ground wires.
5. Remove two 1/4" hex head screws from brackets.

## Toe Grille

1. Remove two 1/4" hex head screws.
2. Pull forward.

## Front and Rear Roller Assembly

Refrigerator can not be installed when replacing roller assembly.

1. Remove toe grille
2. Raise front of refrigerator 4" (101.6 mm) from floor.
3. Remove cotter pin from shaft.
4. Remove leveling bolt.
5. Drive pin out from roller assembly and out through access hole in cabinet.

## Water Valve

1. Remove toe grille.
2. Disconnect water supply.
3. Disconnect and remove output waterline.
4. Remove two 1/4" hex head screws holding valve/bracket assembly to left front roller assembly.
5. Unplug wiring harness.

# Cabinet Components Disassembly Procedures

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## **Condensate Drain Pan**

Before removing drain pan, have towels ready to absorb condensation.

1. Remove toe grille.
2. Pull pan forward.

## **Shelf Support Ladders**

1. Remove shelves
2. Remove four #15 torx screws for each ladder.

## **Chef's Pantry Assembly**

1. Remove drawer by sliding up and out.
2. Remove side support rails by removing three 1/4" hex head screws on each side.

## **Refrigerator Thermistor**

1. Remove air grille caps by removing four 1/4" hex head screws.
2. Remove thermistor attached to rear of grille with tinnerman clip.

# Machine Compartment Disassembly Procedures

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## Machine Compartment Access

1. Remove air discharge grille.
2. Open refrigerator door.
3. Remove machine compartment panel by removing 2 Phillips screws. Door will drop down and be held in place by 2 straps. Ribbon connector must be properly connected when testing.

## Low and High Voltage Board and Showroom Switch Access

1. See *Machine Compartment Access*.
2. Remove four 1/4" hex head screws from panel.

## Low Voltage Board

1. See *Low and High Voltage Board and Showroom Switch Access*.
2. Remove 4 Phillips screws.
3. Disconnect edge connector from right edge of board.

## High Voltage Board

1. See *Low and High Voltage Board and Showroom Switch Access*.
2. Remove board by squeezing clip tips.
3. Mark location of wiring to showroom switch at top right corner of compartment.
4. Unclip molex plug at right side.
5. Pull board forward.
6. Transfer wiring from old board to replacement board.

## Important

Always recover refrigerants prior to any sealed system component repair or replacement. Replace drier when performing a sealed system repair with Amana drier.

## Compressor, Condenser, and Condenser Fan Access

1. See *Machine Compartment Access*.
2. Unplug ribbon connector.
3. Remove two 1/4" hex head screw retaining straps for control panel.
4. Remove control panel.
5. Unplug thermistor 3 pin lead.
6. Unplug 12 pin high voltage molex plug.
7. Remove four 1/4" hex head screws that retain low/high voltage compartment box to floor of machine compartment.
8. Remove low/high voltage compartment.

## Capacitor



### WARNING

To avoid electrical shock which can cause severe personal injury or death, discharge capacitor before handling.

1. See *Compressor, Condenser, Condenser Fan Access*.
2. Remove one 1/4" hex head screw from capacitor cover.

## Overload and Relay

1. See *Compressor, Condenser, Condenser Fan Access*.
2. Remove terminal cover by springing plastic clip.

## Condenser Fan Blade

1. See *Compressor, Condenser, Condenser Fan Access*.
2. Remove nut from motor shaft.
3. Remove fan blade. Replace rubber washer behind fan blade when reassembling.

## Condenser Fan Motor

1. See *Condenser Fan Blade*.
2. Remove three 1/4" hex head screws retaining shroud to machine compartment floor.
3. *Access mounting screws by rotating shroud front to right.*
4. Remove three 1/4" hex head screws.
5. Unplug 2 pin wire harness.

## Precondenser Pan Loop

1. Remove toe grille.
2. Remove drain pan.
3. Remove "P" clamp from inlet/outlet ends of drain pan loop.
4. Unbrazed inlet and outlet tube joints at front left corner, next to water valve. Protect adjoining surfaces from heat source.

## Compressor

Always replace drier when repairing refrigeration system. Wear eye protection.

1. See *Compressor, Condenser, Condenser Fan Access*.
2. See *Overload and Relay*.
3. Remove four 7/16" hex head shoulder bolts mounting compressor to machine compartment floor.
4. Unbrazed suction and discharge tubing from compressor.

# Machine Compartment Disassembly Procedures

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## **Condensate Drain Pan**

1. Remove toe grille plate by removing screws.
2. Pull drain pan forward away from condenser.

## **Condenser**

1. See Compressor, Condenser, Condenser Fan Access.
2. See *Condenser Fan Motor, steps 1-3*.
3. Remove three 1/4" hex head screws that mount condenser to machine compartment floor.
4. Score capillary tube at drier and break.
5. Unbrazed condenser inlet.
6. Slide condenser assembly out.
7. Unbrazed 3/16" copper tube from condenser to drier to be reused on replacement condenser and drier.

## **Power Disconnect Switch**

1. See *Machine Compartment Access*.
2. Remove leads.
3. Pop switch out through front.

## **Showroom Switch**

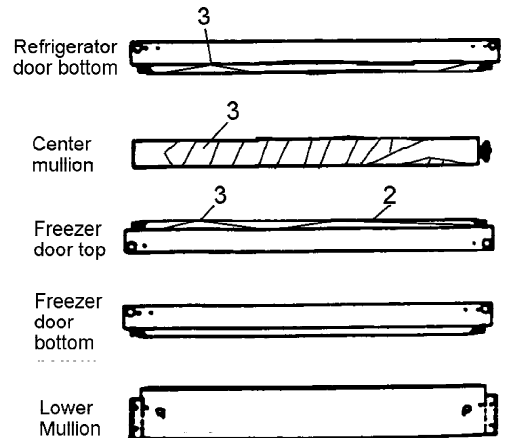
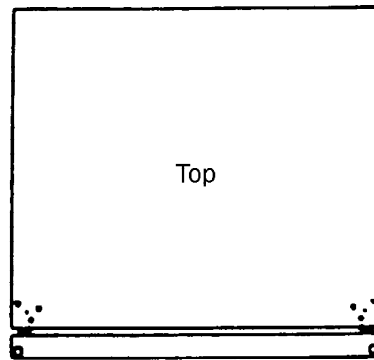
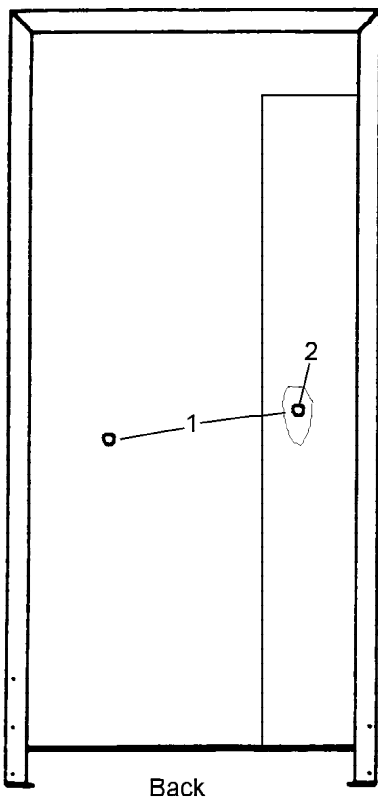
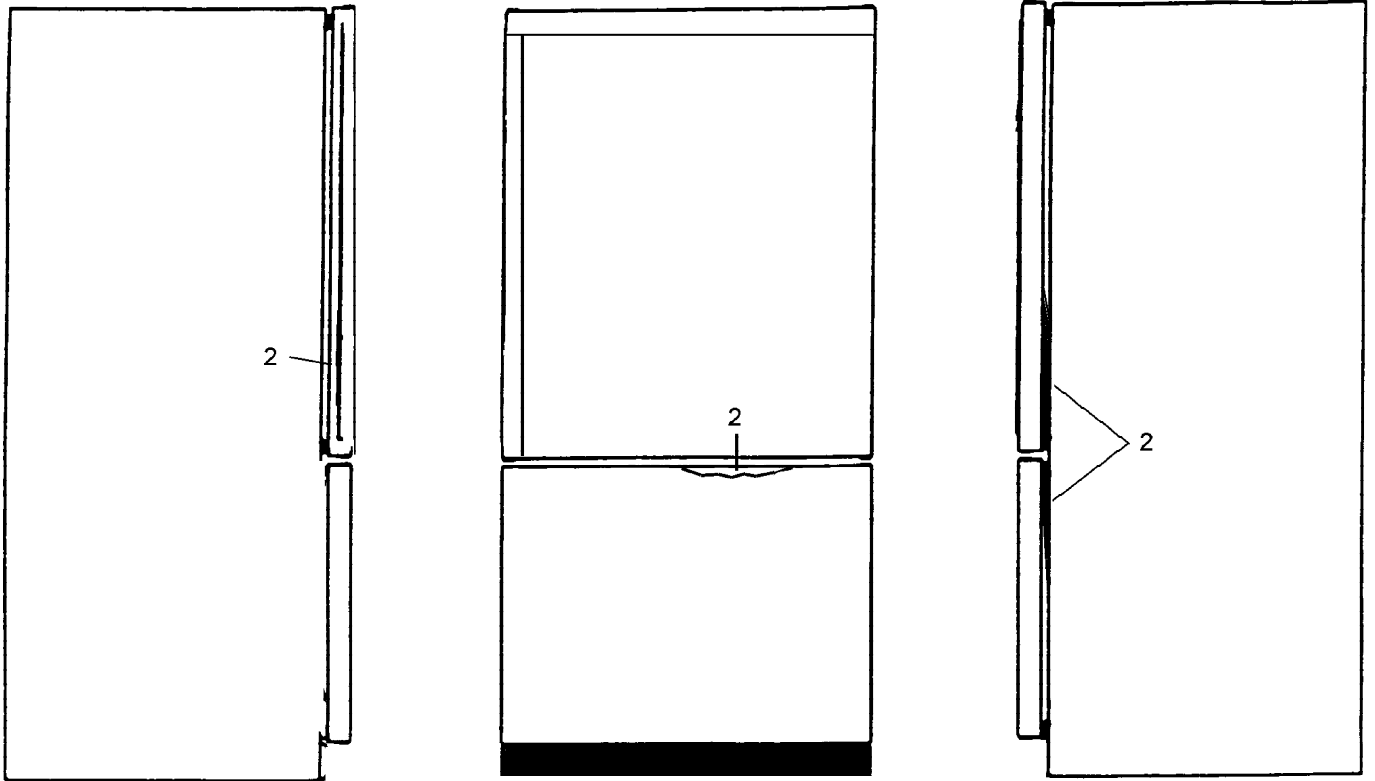
1. See *Low and High Voltage Board and Showroom Switch Access*.
2. Remove screws and pull switch down.
3. Remove leads.

# Typical External Sweat Pattern

## Condensation Classifications

- 1 = Haze or fog
- 2 = Beading
- 3 = Beads or small drops
- 4 = Drops running together

See "Troubleshooting Guide", *Exterior cabinet condensation*



# Troubleshooting Guide

Problem	Possible Cause
Loud operating sound level	<ul style="list-style-type: none"> <li>• See “Sound Information” section for explanation of normal operating sounds</li> </ul>
<ul style="list-style-type: none"> <li>• Freezer too warm</li> <li>• Compressor not operating</li> </ul>	<ul style="list-style-type: none"> <li>• Freezer temperature set too warm</li> <li>• Defective compressor</li> <li>• Defective overload or relay</li> </ul>
Refrigerator too cold	<ul style="list-style-type: none"> <li>• Refrigerator temperature set too cold</li> <li>• Chef’s Pantry control set too cold or misaligned allowing freezer air to escape into refrigerator section</li> <li>• Freezer temperature set too cold</li> <li>• Restricted condenser air</li> <li>• Refrigerant shortage or restriction</li> <li>• Refrigerant overcharge</li> </ul>
<ul style="list-style-type: none"> <li>• Freezer too warm</li> <li>• Compressor cuts off on overload</li> </ul>	<ul style="list-style-type: none"> <li>• Heavy usage</li> <li>• High ambient</li> <li>• Restricted condenser air</li> <li>• Defective condenser fan motor</li> <li>• Loose or missing condenser fan blade</li> <li>• Improper voltage</li> <li>• Defective relay or overload</li> <li>• Compressor motor winding</li> <li>• Non-condensibles in system</li> <li>• Refrigerant overcharge</li> </ul>
<ul style="list-style-type: none"> <li>• Freezer too warm</li> <li>• Compressor operating</li> </ul>	<ul style="list-style-type: none"> <li>• Freezer temperature set too warm</li> <li>• Restricted condenser air</li> <li>• Defective condenser fan motor</li> <li>• Opened door</li> <li>• Heavy usage</li> <li>• Defective freezer fan motor</li> <li>• Opened defrost thermostat</li> <li>• Opened defrost heater</li> <li>• Loose or missing freezer or condenser fan blade</li> <li>• Heavily frosted evaporator</li> <li>• Refrigerant shortage or restriction</li> <li>• Inefficient compressor</li> </ul>
Refrigerator too warm	<ul style="list-style-type: none"> <li>• Refrigerator temperature set too warm</li> <li>• Freezer temperature set too warm</li> <li>• Return air or air supply duct blocked</li> <li>• Chef’s Pantry control set too warm or air supply tube blocked</li> <li>• Heavy usage</li> <li>• High ambient</li> </ul>

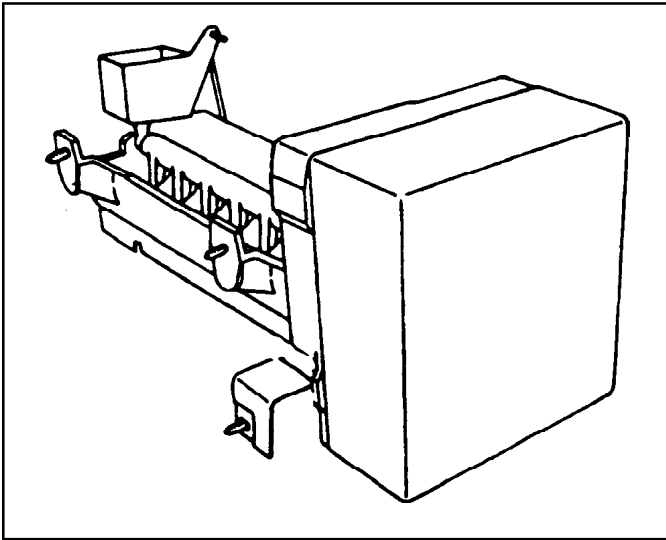


# Troubleshooting Guide

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Problem	Possible Cause
Freezer too cold	<ul style="list-style-type: none"> <li>• Freezer temperature set too cold</li> </ul>
Long off cycle	<ul style="list-style-type: none"> <li>• Low ambient</li> <li>• Freezer temperature set too warm</li> </ul>
Short off cycle	<ul style="list-style-type: none"> <li>• Heavy usage</li> <li>• High ambient</li> <li>• Freezer temperature set too cold</li> <li>• Light constantly on</li> <li>• Poor door gasket seal</li> </ul>
Long or continuous run cycle	<ul style="list-style-type: none"> <li>• Heavy usage</li> <li>• High ambient</li> <li>• Inadequate condenser air flow</li> <li>• Freezer temperature set too cold</li> <li>• Loss or restricted refrigerant</li> </ul>
Short run cycle	<ul style="list-style-type: none"> <li>• Light usage</li> <li>• Low ambient</li> <li>• Freezer temperature set too warm</li> </ul>
Exterior cabinet condensation	<ul style="list-style-type: none"> <li>• High humidity. Design accepts beads of water on cabinet exterior after 4 hours with 0° to 2°F (-18° to -17°C) freezer food temperature and 38° to 40°F (3° to 4°C) refrigerator food temperature in 84% R.H. conditions. See "Typical Sweat Pattern" section under above conditions.</li> <li>• Freezer temperature set too cold</li> <li>• Poor door gasket seal</li> <li>• Insulation void</li> </ul>

# Ice Maker



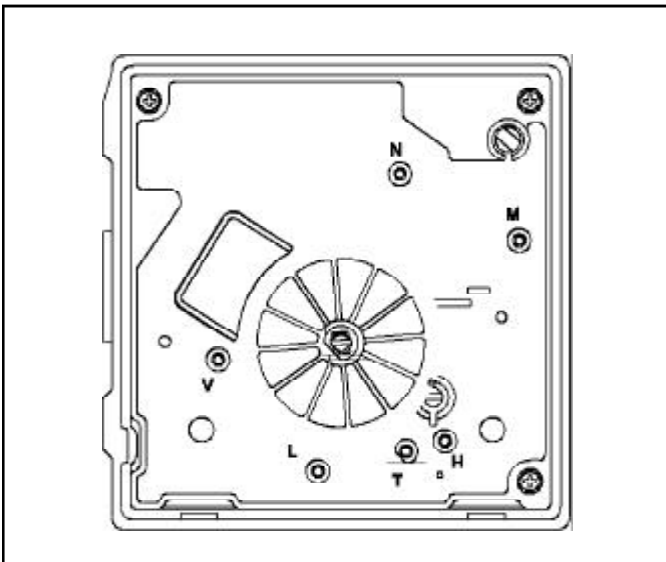
## Operation

Thermostat closes when temperature reaches  $17^{\circ} \pm 3^{\circ}\text{F}$  ( $-8.3^{\circ} \pm 1.5^{\circ}\text{C}$ ). Current flows through thermostat to motor. See "Ice Maker Wiring Diagram". Motor is linked with drive gear. From module, there are copper contacts that ride on copper strips on backside of drive gear. As the drive gear rotates, contacts will make or break a circuit (tract) to the copper strips to operate ice maker.

All components can be tested without removing ice maker or moving refrigerator away from installation. Remove cover.

Test points are identified on module:

- N = Neutral side of line
- M = Motor connection
- H = Heater Connection
- T = Thermostat connection
- L = L1 side of line
- V = Water valve connection



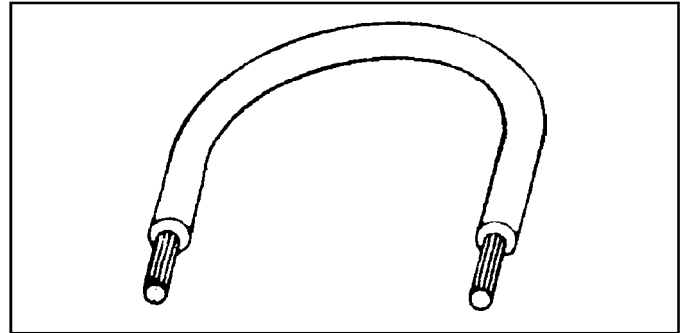
## Specifications

- Mold heater: 185 watts, 264 ohms
- Thermostat: Close  $17 \pm 3^{\circ}\text{F}$  ( $-8 \pm 1^{\circ}\text{C}$ ) (bimetal)  
Opens  $32^{\circ} \pm 3^{\circ}\text{F}$  ( $0^{\circ} \pm 1^{\circ}\text{C}$ )
- Water fill: 140 cc, 7.5 sec.
- Motor cycle: Stamped in circuit.  
Plug in connectors.  
One revolution of blades takes 3 minutes plug stall time on ice (eject and water fill).

## Testing Procedures

Verify ice maker has power, shut-off arm is down, and freezer is cold enough to close bimetal thermostat.

- Test point *L* and *N* will verify 120 volts to ice maker module.
  - Test points *T* and *H* will verify bimetal thermostat is open or closed.
  - Verify test probes go into test points 1/2 inch (1.25 cm).
1. Short *T* and *H* with a shunt (insulated 14 gauge wire with ends stripped back 5/8 inch (1.6 cm)) to run motor. If motor runs, replace bimetal thermostat. If motor does not run, replace module.



2. Leave jumper in for half of revolution. Touch heater mold. If heater mold feels warm, heater is working properly.
3. Remove jumper. Water valve will be energized in last half of revolution if mold heater has not failed.



## Caution

To avoid ice maker damage do not short any contacts together other than those specified.

# Ice Maker

Module Ohmmeter Checks No Power to Ice Maker and Ejector Blades in End of Cycle Position			
Test Points	Component	Module Position	Ohms
L - H	Mold and heater	Attached to support	264
L - M	Motor	Separated from heater	16,100

Module Voltage Checks with Meter or Test Light Power to Ice Maker			
Test Points	Component	Line Voltage	0 Volts
L - N	Module	Power on	Power off
T - H	Bimetal	Open	Closed
L - H	Heater	On	Off
L - M	Motor	On	Off
N - V	Water valve	On	Off

## Disassembly Procedures

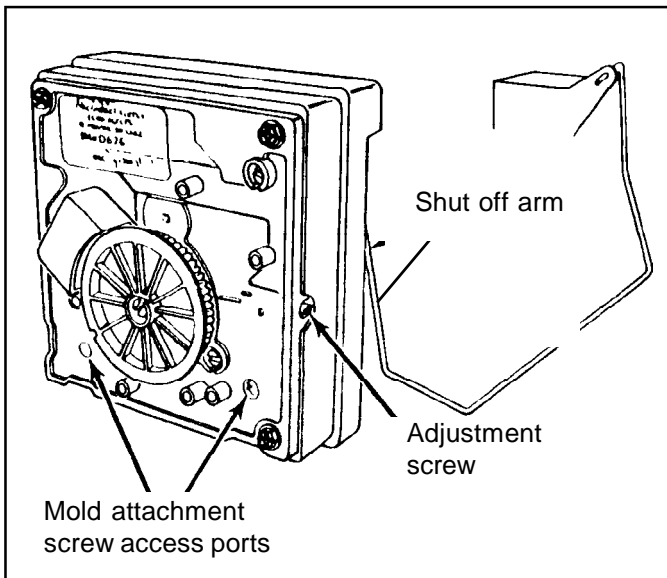
### Cover

1. Pull water adjustment knob forward.
2. Snap off cover.



### WARNING

To avoid electrical shock which can cause severe personal injury or death, disconnect power to refrigerator using power switch before servicing. Wires removed during disassembly must be replaced on proper terminals to insure correct earthing and polarization. After servicing, reconnect power using power switch.



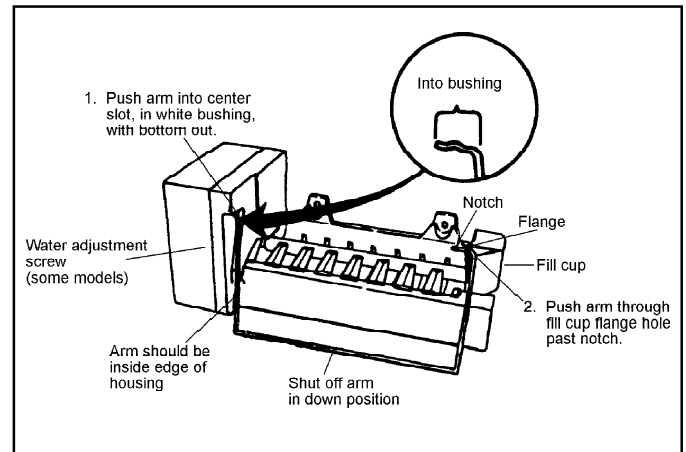
## Module, Motor, and Support Assembly

1. Loosen both screws in module access ports.
2. Disconnect shut-off arm.
3. Pull mold from support assembly.

Remove module only by removing 3 screws and pulling module out of housing.

## Shut-Off Arm

1. Pull shut-off arm out from white bushing.
2. Replace by pushing completely in.
3. Follow steps below.

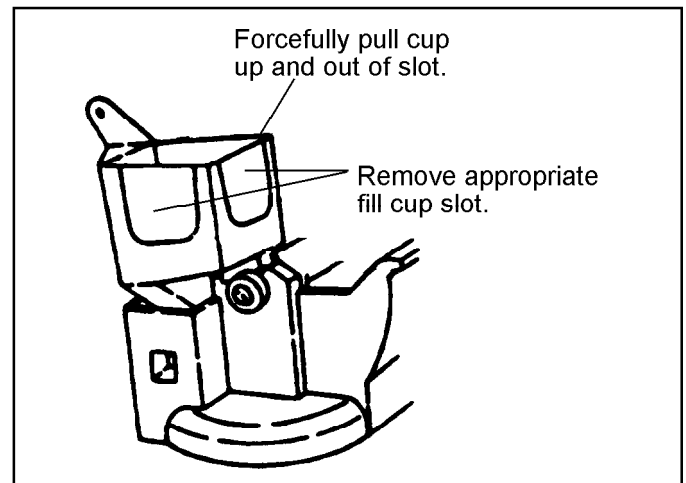


## Module and Heater Assembly

1. Remove module and support assembly.
2. Install module and support assembly on replacement mold and heater assembly.

## Fill Cup

1. Remove module and support assembly.
2. Remove ejector blades and shut-off arm.
3. Pull fill cup from mold.



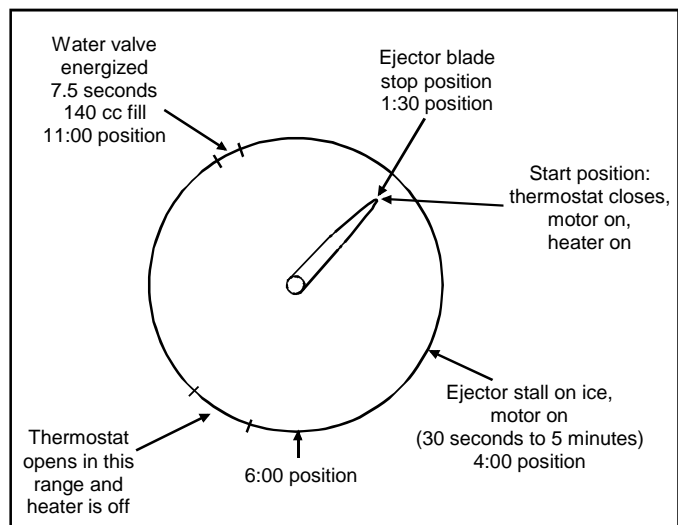
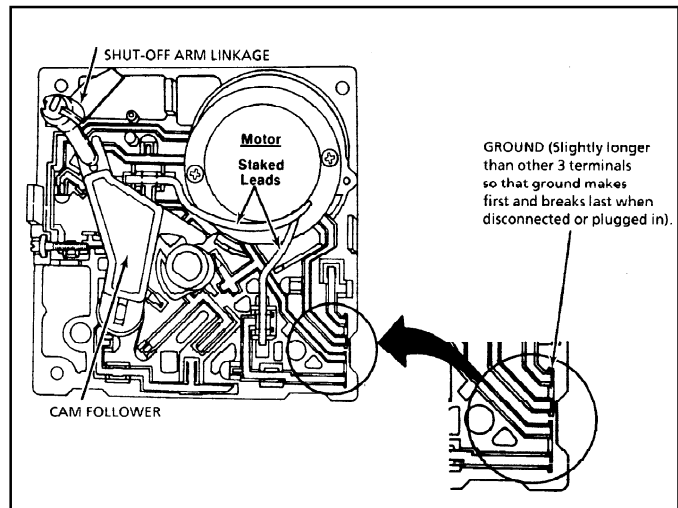
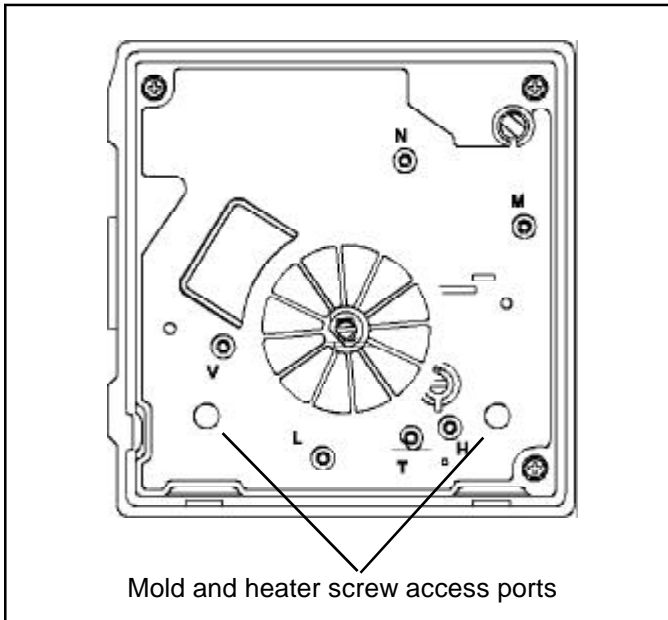
# Ice Maker

## Ejector Blades or Stripper

1. Remove module and support assembly.
2. Install ejector blades, realigning "D" coupling with module cam.

## Accessing Control Box

1. Remove motor and contact assembly from control box by removing 3 screws.
2. Remove shut-off arm.
3. Pull free.



**Caution**

To avoid main assembly damage do not rotate blades or drive gear.

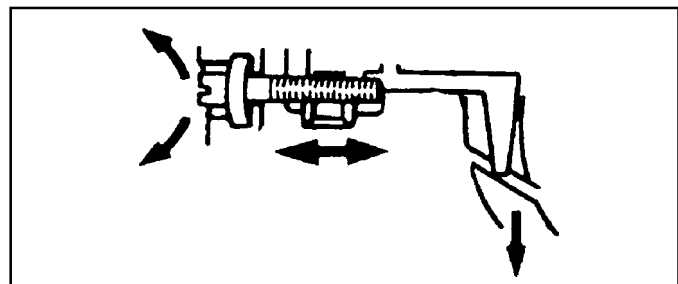
Switches will jam if turned counterclockwise and gears will be destroyed if turned clockwise. Advance ice maker into cycle by using a jumper to bridge *H* to *R*. Ice maker will not run if motor is defective. Shut-off arm must be in on position.

There are several slotted shafts on motor assembly board. Do not insert screwdriver and attempt to turn shafts. Slots permit assembly only.

There are nonrepairable and nonreplaceable components in module. When diagnosing or repairing ice maker, do not remove module unless replacing module.

## Water Fill Adjustment

Turning water level adjustment screw will move contact in relationship with contact ring segment. This causes contact to vary time water valve is energized. Contact ring is tapered at end of fill time.



- Turning screw clockwise decreases fill time.
- Turning screw counterclockwise increases fill time.
- 1/2 turn equals 20 cc or 1.2 seconds.
- Full turn equals 40 cc or 2.4 seconds.

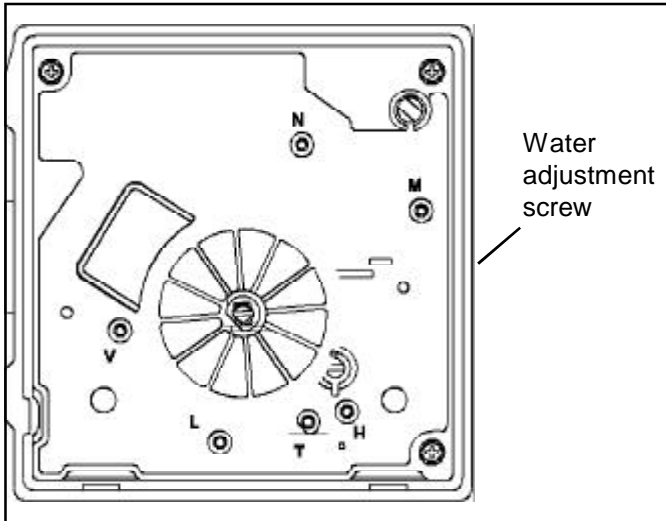
# Ice Maker



## Caution

To avoid module damage do not rotate water adjustment screw more than one full turn in either direction.

If water valve adjustment screw falls out, put screw in hole and align as shown below.



When small hole is centered in large hole, water fill adjustment is 7.5 seconds (normal fill time).

## Water Problems

Poor water quality can cause ice maker to fail or produce unacceptable cubes. Mineral content or sand can restrict screen in water fill valve or particle of sand can keep valve from seating properly.

If water valve does not close, the following could occur:

- no ice production
- small or hollow ice cubes
- flooding of ice container

Install water filter, part #R0183114, to eliminate bad taste, odor, and visible contaminants.

Mineral contact can cause lime build up in mold. Wicking of water over mold and poor cube release can occur. Silicone is applied at upper edges around fill cup and stripper.

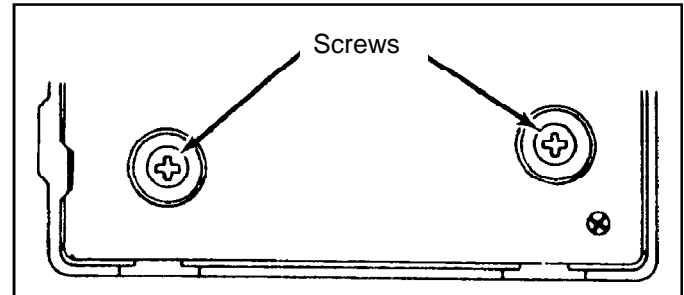
## Temperature Problems

Freezer temperatures above normal  $0^{\circ} \pm 2^{\circ}\text{F}$  ( $-18^{\circ} \pm 1^{\circ}\text{C}$ ) will slow down ice production. Increase ice production by setting freezer to colder setting. Thermostat cycling temperature (1 revolution ice maker) is  $17^{\circ} \pm 3^{\circ}\text{F}$  ( $-8^{\circ} \pm 1^{\circ}\text{C}$ ). Ice will freeze when these temperatures are achieved. Cycling time will be slower if freezer temperature is not cold enough to achieve mode temperatures easily.

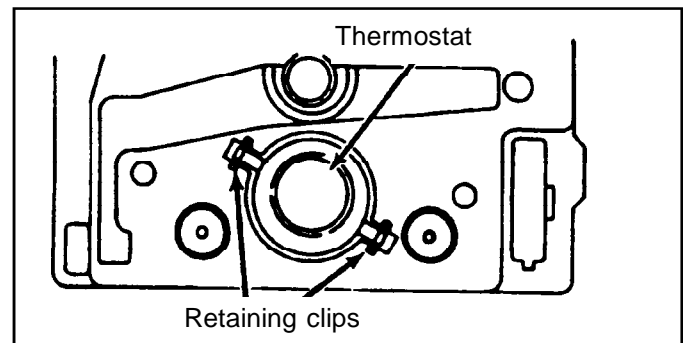
Thermostat, mold heater, and wiring harness are replaceable. Any other failure, including motor, requires replacement of module assembly. Replacement mold assembly comes with new mold heater installed.

## Thermostat

1. Remove control box from mold by removing screws.



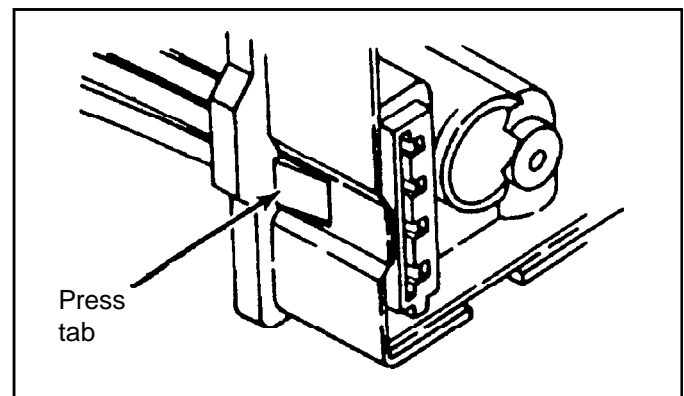
2. Pull front of black housing free of mold. Thermostat is on mold side.



3. Grasp 1 thermostat clip and pull out.
4. Press in new thermostat. Verify pins are properly indexed. Electrical assembly does not need to be removed.  
If replacing module, transfer clips to new mold support. Use new thermal bonding material.

## Wiring Harness

Remove wiring harness by pressing retaining tab and pulling forward.



# Ice Maker

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## Caution

To avoid property damage, test for water leaks after repair or replacement of water valve. Do not overtighten connection to household water supply.

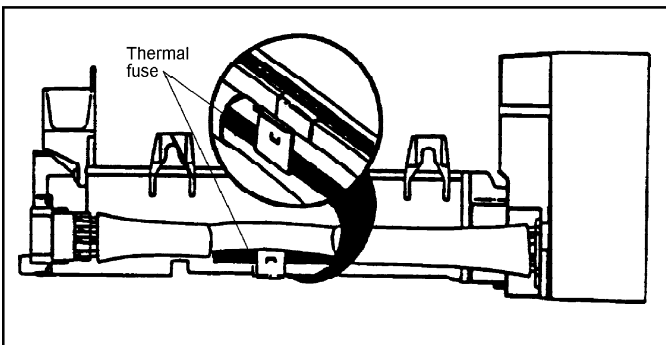
## Water Valve

Water valve has 1 solenoid. Valve has 80 mesh screen water strainer. When tan encapsulated solenoid is energized, the amount of water entering ice maker mold is directly proportional to length of time water valve switch is held closed by timing cam.

Inside valve is a flow washer which acts as a water pressure regulator. Proper ice maker fill is 140 cc  $\pm$  10cc at 7.5 seconds of water fill at an inlet pressure ranging from 20 to 120 PSI (1.4 to 8.2 bar).

## Wiring Harness

A nonresettable thermal fuse micro device 170°F (78°C) is spliced into red wire of ice maker wiring harness. Fuse will protect freezer plastic liner from melting if ice maker should overheat. Excessive heat can cause no ice production. Replacing wiring harness will only temporarily solve problem. Replace ice maker thermostats.



# Ice Maker Troubleshooting Chart

<b>No or Low Ice Production</b>	
<b>Problem</b>	<b>Action</b>
Warm freezer	Adjust freezer control or repair refrigerator
Broken locking tab on vertical cam	Replace module
Shorted and burned module shut-off switch and contacts	Replace module
Stalled or stripped motor	Replace module
<b>2:30 Ejector Position</b>	
Contaminated module. Motor won't run when "T" and "H" test points are shorted.	Replace module
Open or missing thermostat	Replace or install thermostat Apply alumilastic
No power to ice maker (harness)	Determine discontinuity by tracing power
Jammed cubes Notice size and density of cubes	Un-jam cubes Check fill tube and fill-cup assembly
Frozen fill tube	Replace water valve
Kinked water line	Un-kink line and check line for weak sections
Obstructed water line to ice maker or refrigerator	Clear water line
Clogged water valve	Replace water valve
No power to water valve	Determine discontinuity by tracing power
Low water pressure	Short "T" & "H" test points for 10 seconds. Remove jumpers. Catch water in glass. Increase water pressure to 20 -120 psi (1.4 - 8.2 bar) 140 cc's.
Open heater circuit	Replace mold and heater assembly
Closed thermostat	Replace thermostat
Damaged heater tulips on module	Replace module
Short heater pins that do not contact module	Replace mold and heater assembly
Raised shut-off arm	Lower shut-off arm to begin cycle
Water or ice in actuator/housing hole	Remove module Dry actuator and housing hole
Small or burred housing hole	Repair or replace ice maker
Large or burred actuator O.D.	Replace module
Damaged module housing	Replace module
Deformed shut-off arm	Replace shut-off arm
Little or no alumilastic on thermostat	Apply alumilastic to thermostat
Housing to mold screws not seated	Tighten 2 screws (20-26 in.lb) (22.8 - 29.6 cm.kg)
Heater not staked in mold	Replace mold and heater assembly Apply alumilastic
Incorrect heater temperature	Replace mold and heater assembly Apply alumilastic
Broken shut-off lever or mislocated shut-off switch	Replace module

# Ice Maker Troubleshooting Chart

<b>3:00 Ejector Position</b>	
Contaminated	Replace module
Jammed cubes Notice size and density of cubes	Un-jam cubes
Refrigerator or ice maker not level	Level refrigerator or ice maker
No power to ice maker	Determine discontinuity by tracing power
Excessive water-fill volume	Adjust module screw, lower water pressure, or replace water valve
Cubes falling back into mold during ejection	Replace fill cup Check fill tube assembly
<b>4:00 Ejector Position</b>	
Contaminated	Replace mold and heater assembly Apply alumilastic
Thermostat out of calibration	Replace thermostat Apply alumilastic
Open heater circuit Motor should oscillate	Replace mold and heater assembly Apply alumilastic
Little or no alumilastic on thermostat	Apply alumilastic to thermostat
Heater not staked in mold	Replace mold and heater assembly Apply alumilastic
Broken locking tabs on vertical cam	Replace module
<b>6:00 Ejector Position</b>	
Contaminated	Replace mold and heater assembly Apply alumilastic
Insufficient water to ice maker, small or hollow cubes	Refer to "Hollow Ice Cubes"
<b>7:30 Ejector Position</b>	
Contaminated Motor will not oscillate	Replace module
Shut-off arm stuck in ice or obstructed	Remove obstruction Replace module
Cubes not formed properly	Un-Jam Check fill cup and fill tube assembly
<b>9:00 Ejector Position</b>	
Contaminated	Replace module
Cube frozen to fill cup or mold	Un-jam Replace fill cup and module



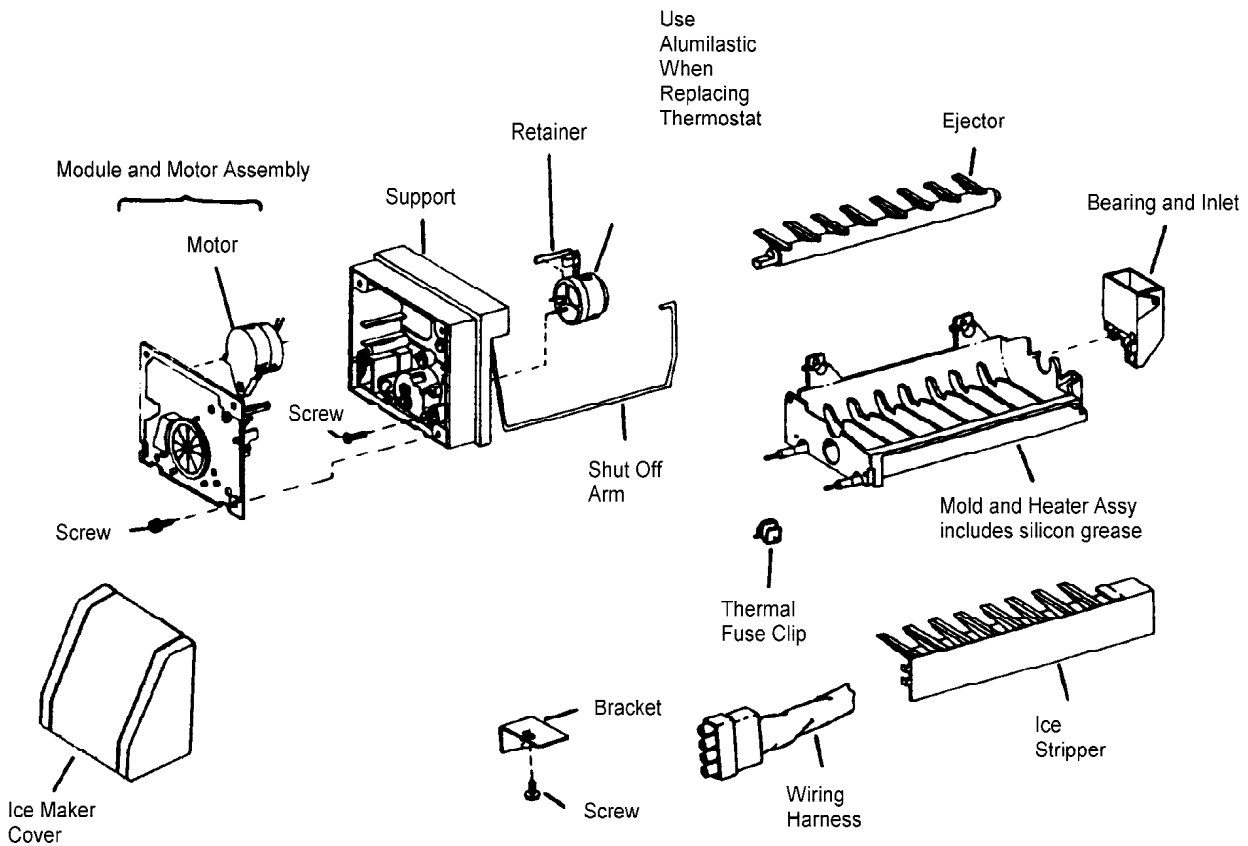
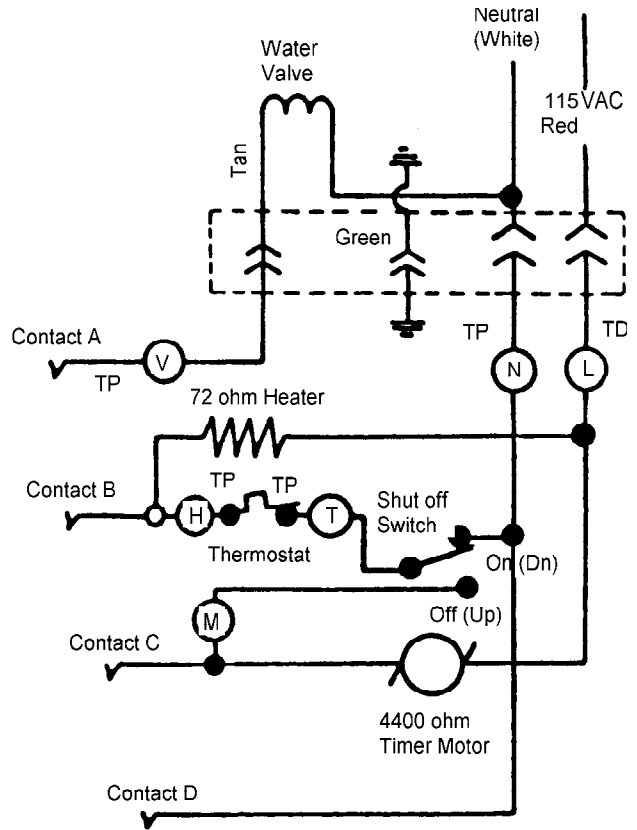
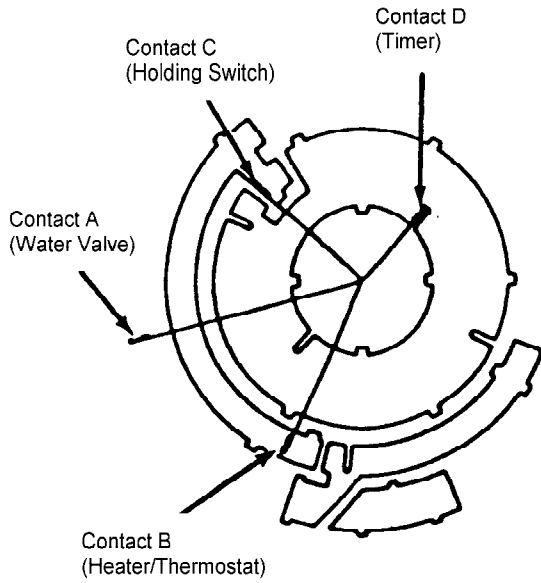
# Ice Maker Troubleshooting Chart

Excessive Ice Production	
Problem	Action
Shut-off arm not in actuator	Replace shut-off arm in actuator
Deformed shut-off arm	Replace shut-off arm
Broken shut-off lever or lever bypassing vertical cam	Replace module
Broken module actuator	Replace module

Hollow Ice Cubes	
Problem	Action
Low water fill volume	Adjust module screw, clear water path, or replace water valve
Improper freezer air-flow	Direct air flow away from thermostat
Thermostat out of calibration	Replace thermostat Apply alumilastic

Flooding or Ice in Bucket or Freezer	
Problem	Action
Thermostat out of calibration	Replace thermostat Apply alumilastic
Jammed cube stalled in water-fill cycle	Remove cube Determine reason for stall
Leaky water valve	Replace water valve
Excessive water fill volume	Replace water valve
Motor stalled in water-fill cycle (12:00 ejector position)	Replace module
Contaminated module	Replace module
Refrigerator or ice maker not level	Level refrigerator or ice maker
Excessive water pressure	Decrease water pressure (20-120 psi) (1.4 - 8.2 bar)
Shorted and burned module shut-off switch and contacts	Replace module
Broken locking tab on verticle cam (Stalled in water fill)	Replace module
Fill-tube not properly positioned in fill cup	Reposition fill tube
Fill cup water opening blocked	Replace fill cup
Cubes fall over back of ice maker, melting in freezer	Replace fill cup

# Ice Maker Wiring Diagram and Parts Layout



# B136CKR1 and B136CKL1 Custom Handle Kit

## Introduction



**Recognize this symbol as a safety precaution.**



### WARNING

To avoid severe personal injury or property damage from refrigerator tipping over, do not open more than one door at a time, until refrigerator has been secured to structure.



### Caution

To avoid personal injury protect hands and arms by wearing gloves. Trim pieces may have sharp edges.



### Caution

To avoid property damage, protect soft vinyl or other flooring with cardboard, rugs, or other protective material.

Read entire manual before installing kit. Align parts checking for proper fit before beginning. All necessary tools and materials must be available prior to installation. Verify all listed parts are included in kit. If parts are missing, contact source from whom kit was purchased.

- Two people are recommended to install kit.
- Mechanical experience is required to install kit.
- If unable to solve a problem during installation, contact an authorized Amana technician. Locate a Factory Service Center or independent authorized technician by calling 1-800-628-5782 inside U.S.A. and 1-319-622-5511 outside U.S.A. Service is at owner's expense.

This kit is designed for applications where custom handles are desired to replace factory installed handles. Kit includes trim necessary to hold custom panels in place on refrigerator door and freezer drawer. Custom handles are not provided and is the responsibility of the consumer to provide.

## Parts List

### B136CKR1

Part Number	Description	Quantity
12063501	Extrusion freezer door frame	1
12063503	Extrusion door frame	1
12116501	Installation instructions	1
M0275148	1" Wide double back tape	30"
12063703	Handle insert	1

### B136CKL1

Part Number	Description	Quantity
12063501	Extrusion freezer door frame	1
12063503	Extrusion door frame	1
12116501	Installation Instructions	1
M0275148	1" Wide double back tape	30"
12063703	Handle insert	1

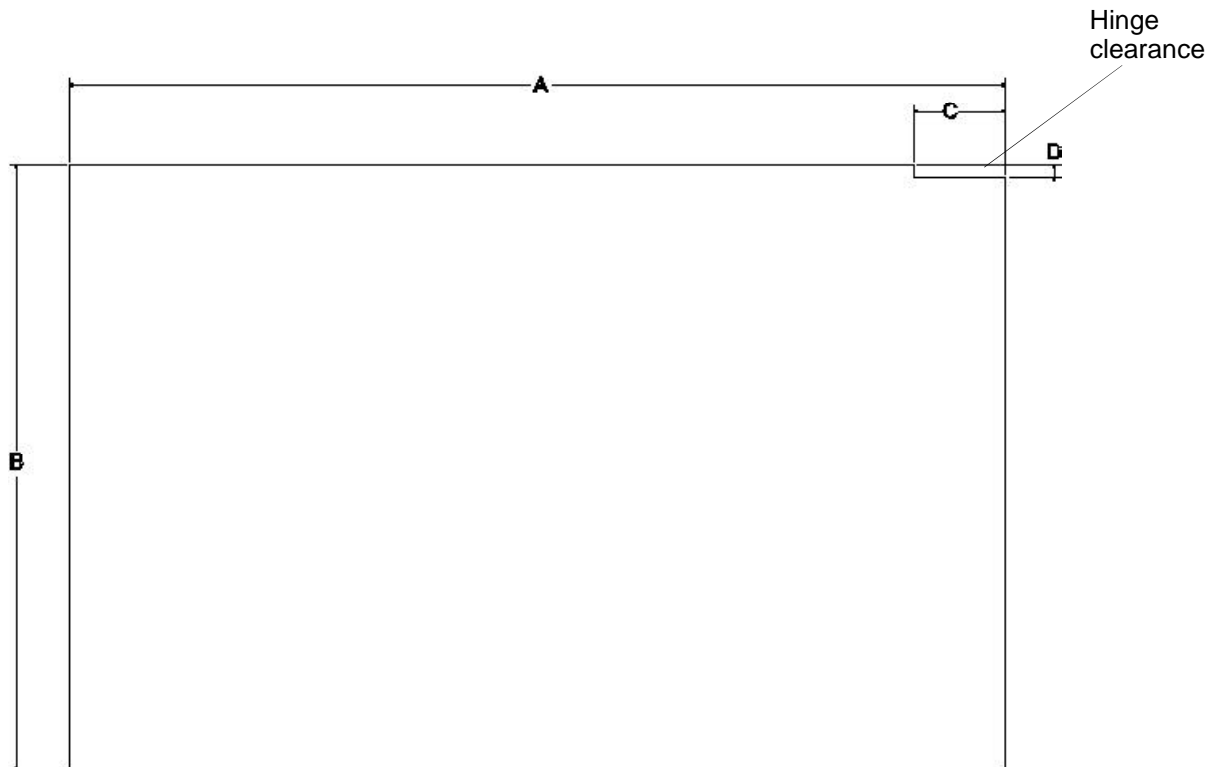
# B136CKR1 and B136CKL1 Custom Handle Kit

## Panel Dimensions

	Panel Depth	A	B	C	D
Refrigerator door without extruded handle	3/4"	35 1/4"	51 7/16"		
Freezer door without extruded handle	3/4"	35 1/4"	23 1/16"		
Refrigerator door with or without extruded handle	1/4"	35"	51 1/4"		
Freezer door with extruded handle	1/4"	35"	23 11/32"	3 1/2"	1/2"
Refrigerator door with extruded handle	3/4"	32 1/4"	51 7/16"		
Freezer door with extruded handle	3/4"	35 1/4"	20 9/16"		
Freezer door without extruded handle	1/4"	35"	22 27/32"		

## Door Panels with Hinge on Right Side and Extruded Handle

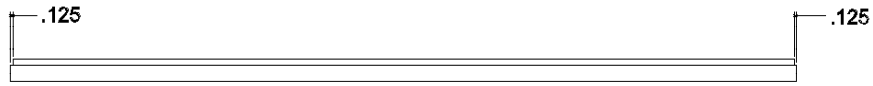
Reverse view for hinge on left side



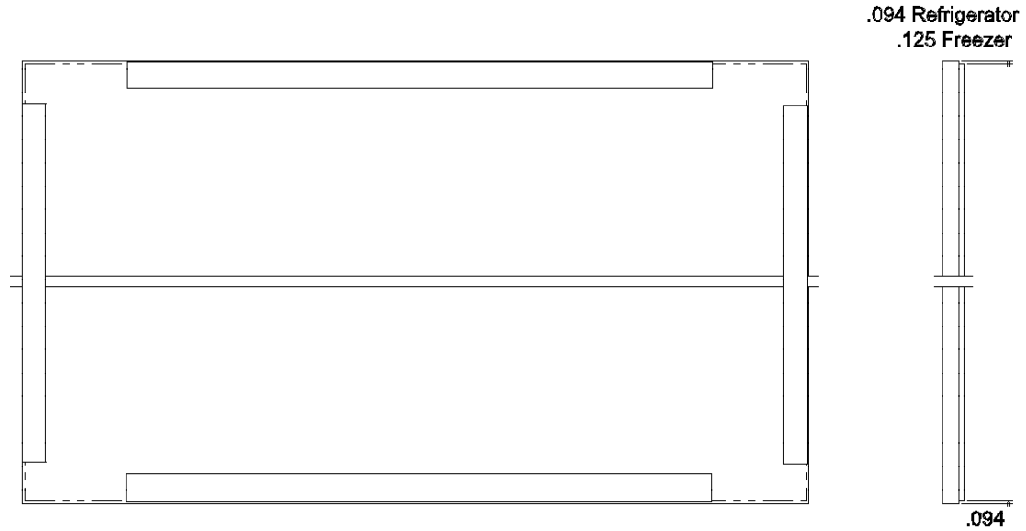
# B136CKR1 and B136CKL1 Custom Handle Kit

## Refrigerator, Freezer Door Panel with Custom Handle (inches)

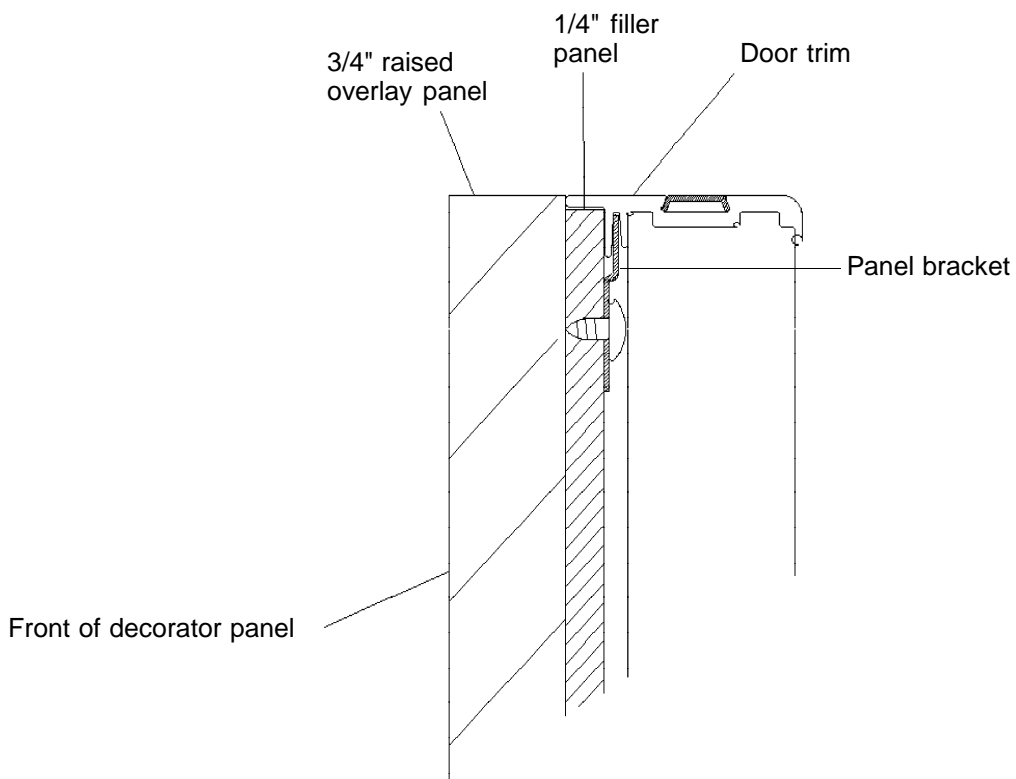
Center align panel brackets on back of panel.



 Panel brackets



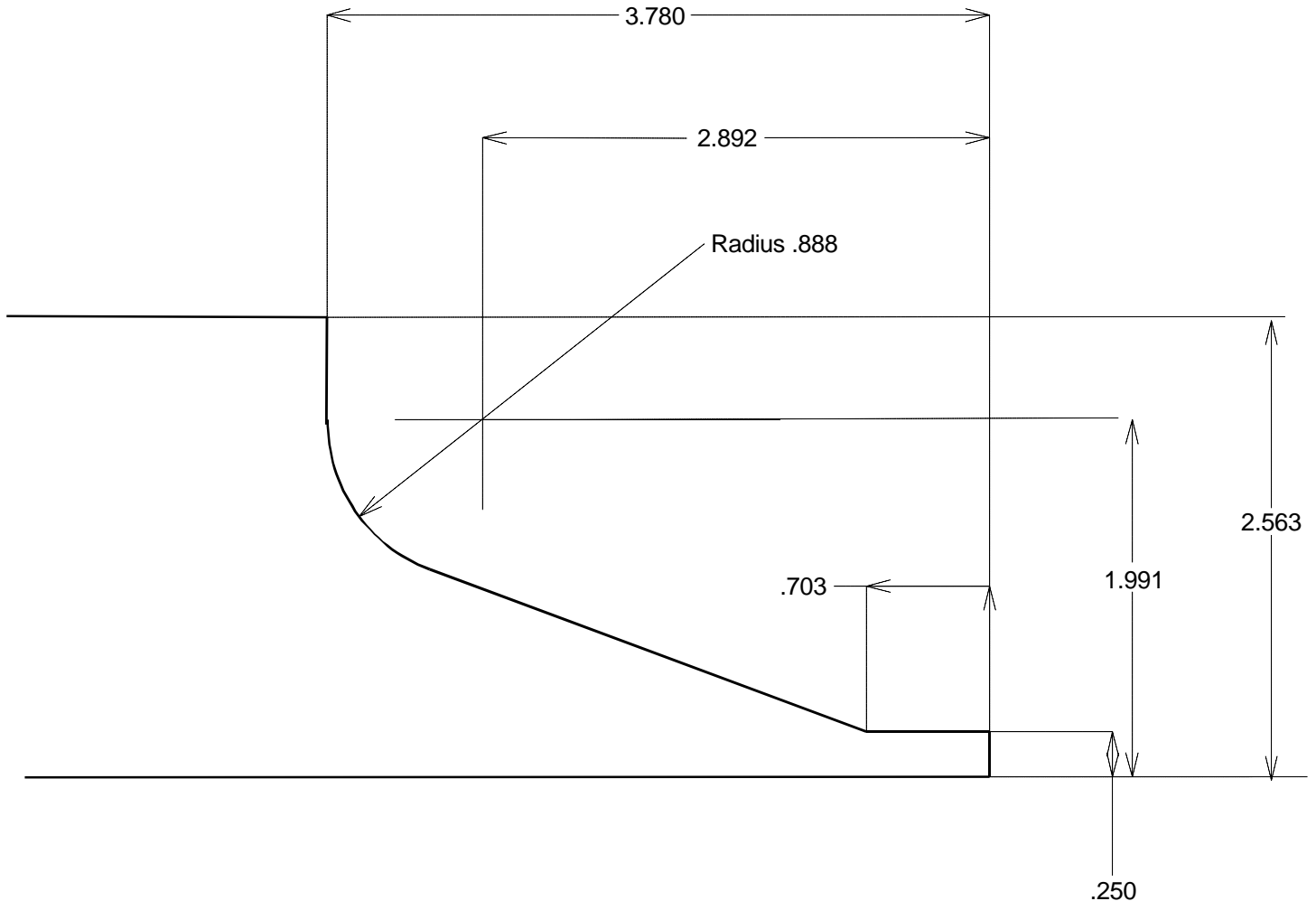
## 3/4" Panel Mounted to 1/4" Filler Panel and Location of Panel Brackets for 3/4" Panel Installations



# B136CKR1 and B136CKL1 Custom Handle Kit

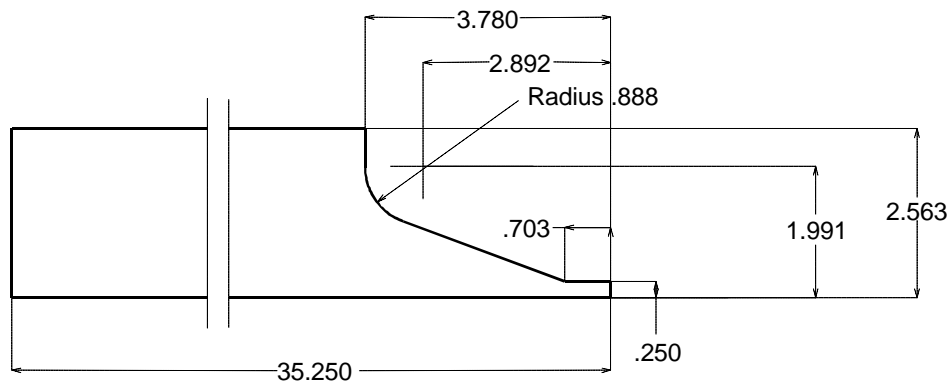
## Freezer Drawer Top Wood Spacer Right Side Hinge Cutout Dimensions For 3/4" Panels (inches) (actual size)

Mount spacer to top of freezer drawer using 1" wide double sided foam tape.



## Freezer Drawer Right Side Hinge Top Wood Spacer Dimensions (1/2" thick) for 3/4" Panels (inches)

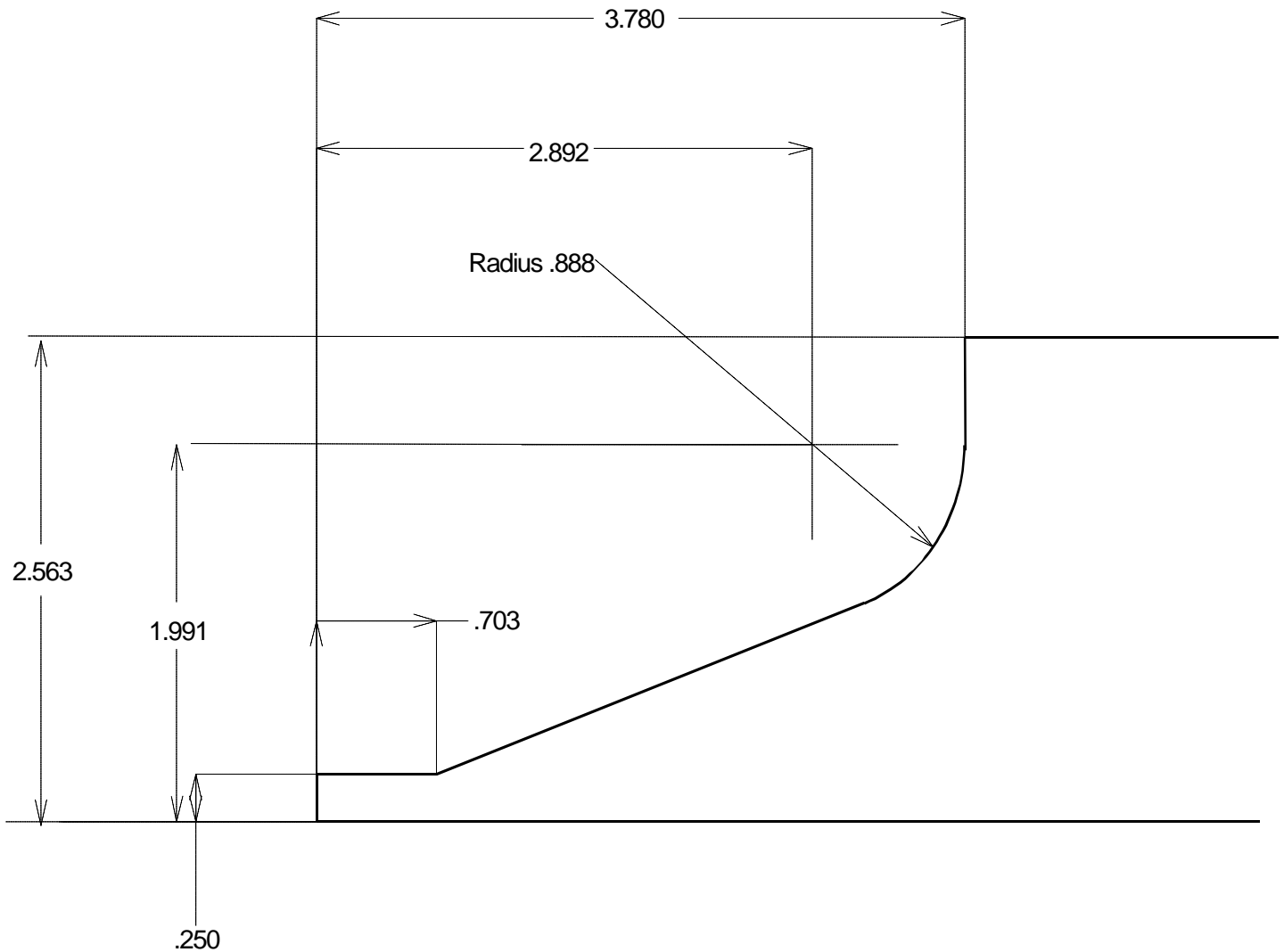
Mount spacer to top of freezer drawer using 1" wide double sided foam tape.



# B136CKR1 and B136CKL1 Custom Handle Kit

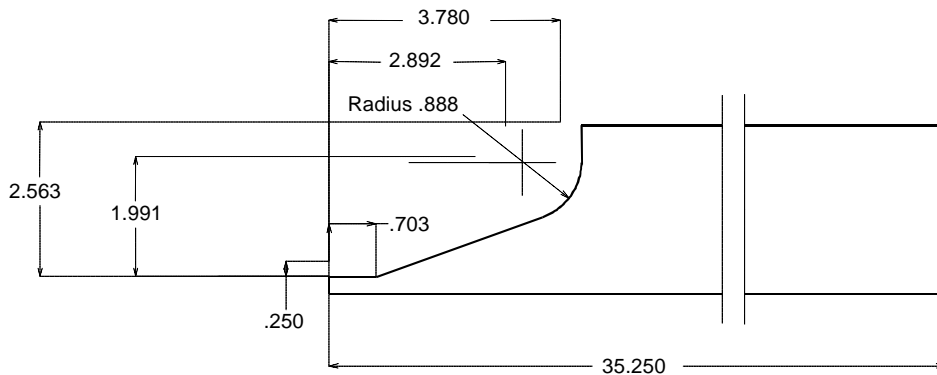
## Freezer Drawer Top Wood Spacer Left Side Hinge Cutout Dimensions for 3/4" Panels (inches) (actual size)

Mount spacer to top of freezer drawer using 1" wide double sided foam tape.



## Freezer Drawer Left Side Hinge Top Wood Spacer Dimensions (1/2" thick) for 3/4" Panels (inches)

Mount spacer to top of freezer drawer using 1" wide double sided foam tape.



# B136CKR1 and B136CKL1 Custom Handle Kit

## Procedures

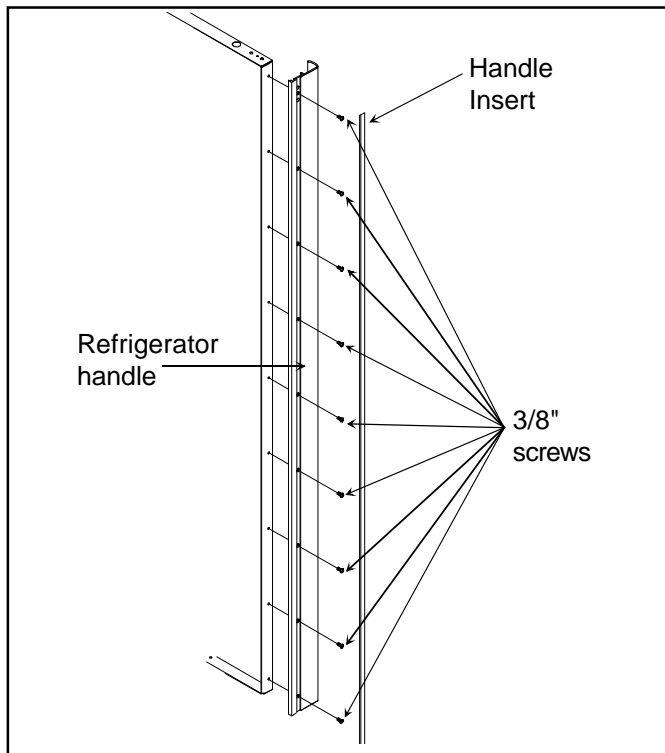
### Refrigerator Door

1. Remove handle insert by prying off one end and pulling handle insert away from door.
2. Remove nine 3/8" screws from refrigerator handle. Remove handle from door.



#### Caution

To avoid property damage, maintain grip on handle after screws have been removed. Handle will be loose once screws have been removed and may fall.

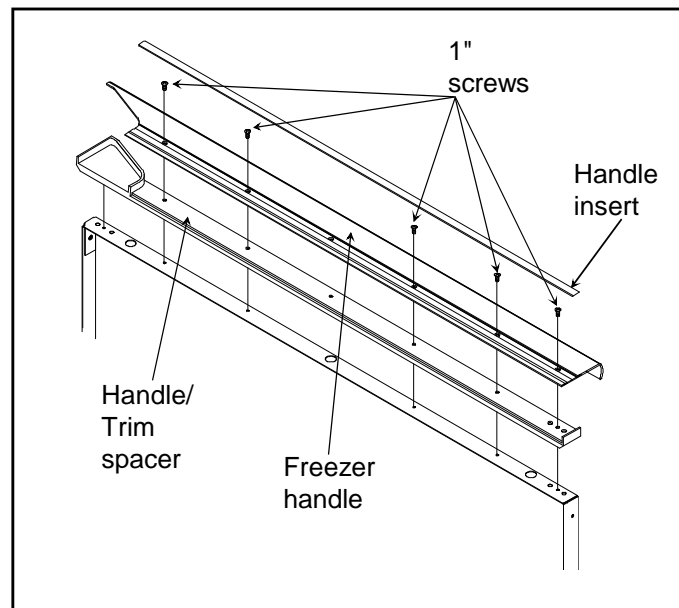


3. Align panel brackets (supplied) with center edge of panel see "Refrigerator, Freezer Door Panel with Custom Handle" page 4 . Install brackets using 1/4" screws.
  - Brackets and screws are provided with refrigerator, and not a part of this kit. Custom panels are consumers responsibility.
  - Panel should have handle already installed.
  - Head of screws used to mount handles to panel must not exceed .15" in height. Screw head height higher than .15" will interfere when installing panels. If screws head height is greater than .15", countersink heads in back of panel.
4. If base panel is less than 1/4", use plastic shims. Shims go between bracket and wood to space panels to desired depth.
  - Shims are provided with refrigerator, and are not part of this kit.

5. Drive low profile screws into panel with screwdriver.
  - Panel brackets must be exactly flush to 1/16" inboard of panel edge.
  - For ease of panel installation, 2 people are required to lift and guide panel into trim.
  - Install 1 panel at a time.
6. Align panel in trim and push evenly. For smoother installation, apply bar soap on door trim and refrigerator trim. If panel binds loosen top door trim. Adjust panel and retighten. See "3/4" Panel Mounted to 1/4" Filler Panel and Location of Panel Brackets for 3/4" Panel Installations", page 4.
7. Install new refrigerator door trim by replacing nine, 3/8" screws.
8. Replace handle insert. Start one edge of insert in track and press other edge into track while working up side of door.

### Freezer Drawer

1. Remove freezer drawer handle insert by prying one end out of track and pulling upward, away from drawer.
2. Remove five, 1" screws from freezer drawer handle. Lift freezer handle and handle/trim spacer off freezer drawer.

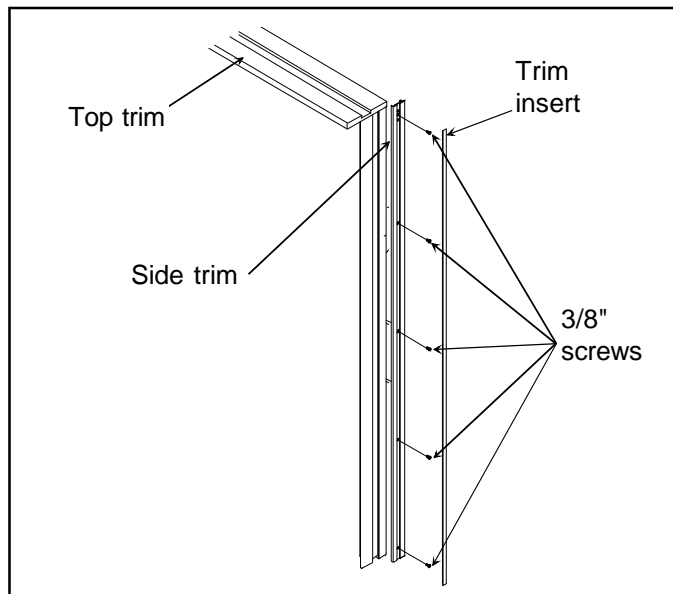


3. Remove trim insert from one side trim piece by prying one end out of track and pulling upward away from the drawer.
4. Remove five 3/8" screws from side trim. Remove side trim from freezer drawer.



# B136CKR1 and B136CKL1 Custom Handle Kit

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5. See "Procedures, Refrigerator Door", steps 3 through 5 for panel assembly procedure.
6. Align panel in trim and push evenly. Start at one end and work across. For smoother installation, apply bar soap on door trim and freezer trim.
7. Replace side trim by inserting five, 3/8" screws.
8. Replace trim insert. Start one edge of insert in track and press other edge into track while working up side of door.
9. Install new top trim by replacing five, 1" screws.
10. Cut new handle insert to a length of 35 1/4". Install new trim insert. Start one edge of insert in track and press other edge into track while working up side of door.
11. Optional: install filler block on top of top trim using 1" wide double sided foam tape provided.
  - For dimensions of filler block see "Freezer Drawer Top Wood Spacer Right Side Hinge Cutout Dimensions" pages 5, or "Freezer Drawer Top Wood Spacer Left Side Hinge Cutout Dimensions" page 6 of this manual.
  - Double sided tape is provided in three, 10" strips.
  - Verify placement of filler block before applying double sided tape. Tape cannot be removed once applied to filler block.

# B136SPK1 1/4" Facia Front Enclosure Kit

## Introduction



**Recognize this symbol as a safety precaution.**



### **WARNING**

To avoid severe personal injury or property damage from refrigerator tipping over, do not open more than one door at a time, until refrigerator has been secured to structure.



### **Caution**

To avoid property damage, protect soft vinyl or other flooring with cardboard, rugs, or other protective material.



### **Caution**

To avoid personal injury, wear gloves to protect hands and arms. Trim pieces may have sharp edges.

Read entire manual before installing kit. Align parts checking for proper fit before beginning. All necessary tools and materials must be available prior to installation. Verify all listed parts are included in kit. If parts are missing, contact source from whom kit was purchased.

- Two people are recommended to install kit.
- Mechanical experience is required to install kit.
- If unable to solve a problem during installation, contact an authorized Amana technician. Locate a Factory Service Center or independent authorized technician by calling 1-800-628-5782 inside U.S.A. and 1-319-622-5511 outside U.S.A. Service is at owner's expense.

This kit is designed for applications requiring a 1/4" wood side panel be attached to one or both sides of the refrigerators. Kit may also have a 3/4" wood panel attached to the base panel to bring the side panel to full refrigerator depth. Kit includes trim and parts needed to attach panel to the side of refrigerator.

## Parts List

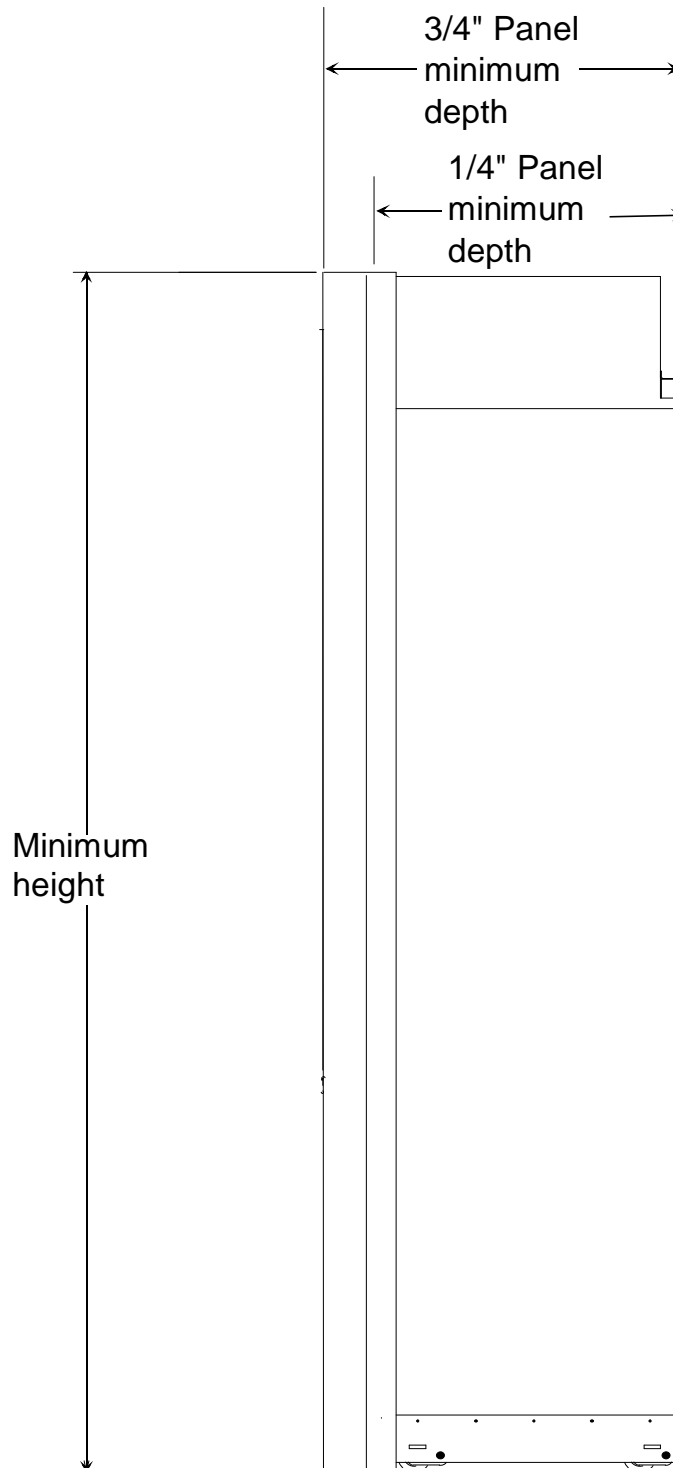
Part Number	Description	Quantity
12115803	Right cabinet extrusion	1
12128401	Cabinet extrusion	2
12200901	Cabinet bracket	2
12098007	Decorator panel bracket	2
12098005	Decorator panel bracket	2
M0215318	Small screw	10
M0210417	Small screw	7
M0223729	Small screw	58
12118504	Left cabinet extrusion	1
12064304	Toe grille	1
12064404	Toe grille	1
12116503	Installation Instructions	1
12119604	Door bracket shim	8
12119605	Door bracket shim	4
12119602	Cabinet bracket shim	8

# B136SPK1 1/4" Facia Front Enclosure Kit

## Panel Dimensions

Side Panel Dimensions		
Panel Thickness	Minimum Height	Minimum Depth
1/4" Side Panels	83.125	21.750
3/4" Side Panels	83.125	23.982

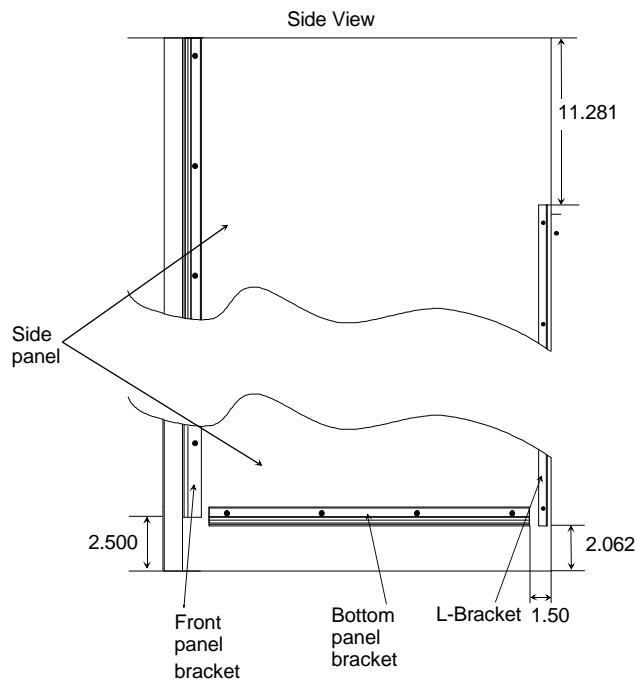
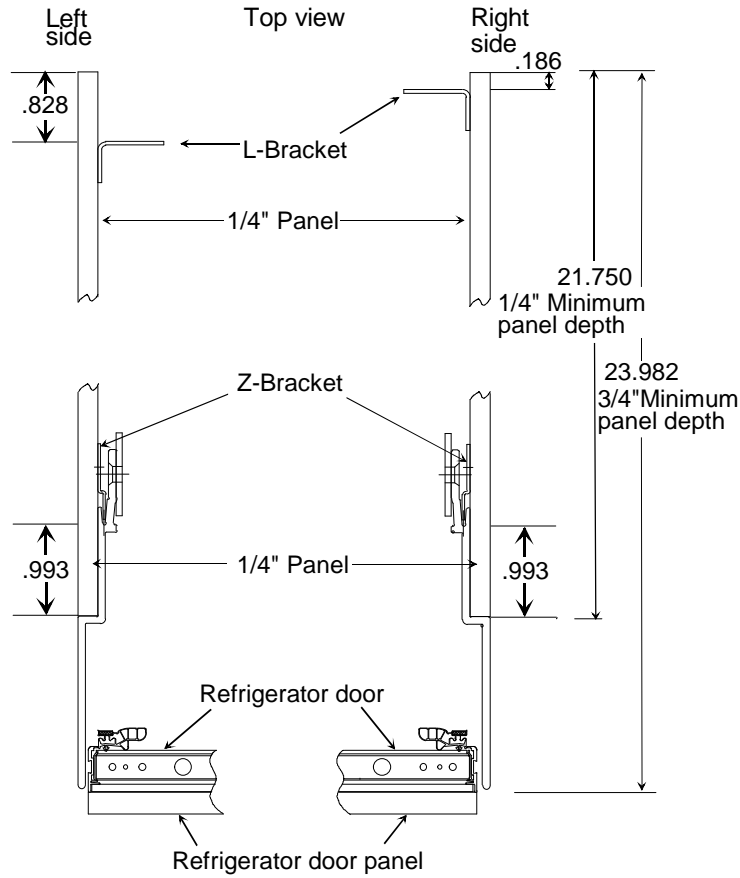
Panel height will vary depending how high leveling wheels have been raised when leveling refrigerator, and cabinet height.  
 If cabinet depth is greater than 24", adjust panel accordingly.  
 Optional 3/4" panel may be added to cover side extrusion as shown below, and on page 4.



# B136SPK1 1/4" Facia Front Enclosure Kit

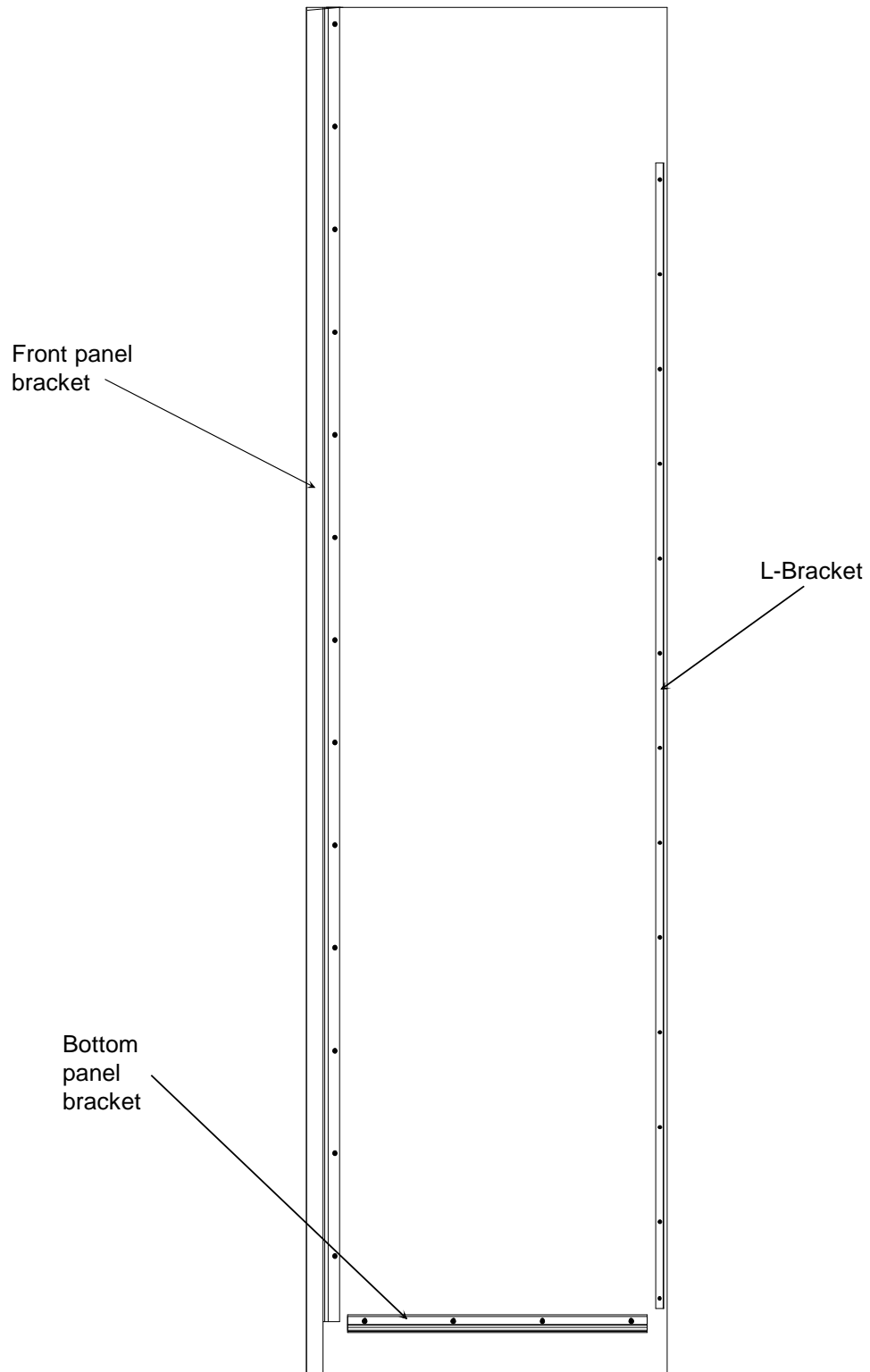
## Location of Panel Brackets on Side Panels

If cabinet depth is greater than 24", adjust panel size accordingly.



# B136SPK1 1/4" Facia Front Enclosure Kit

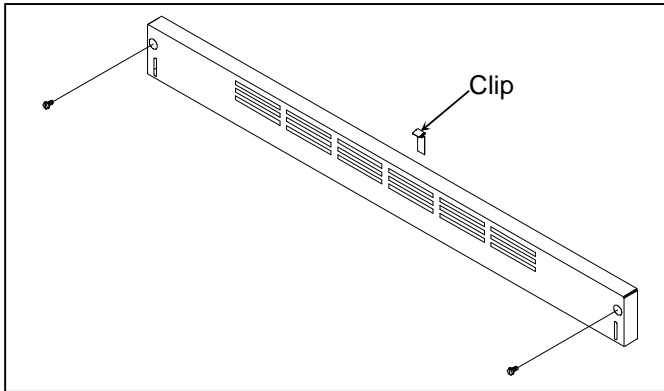
## Full Side View of Front Panel Bracket, Bottom Panel Bracket, and L-Bracket Location



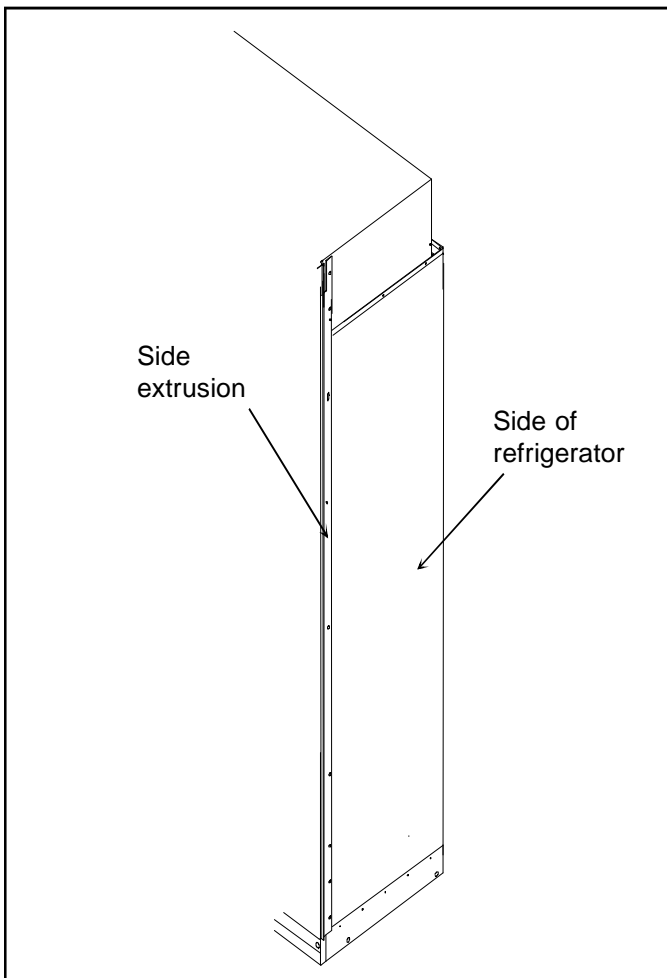
# B136SPK1 1/4" Facia Front Enclosure Kit

## Procedures

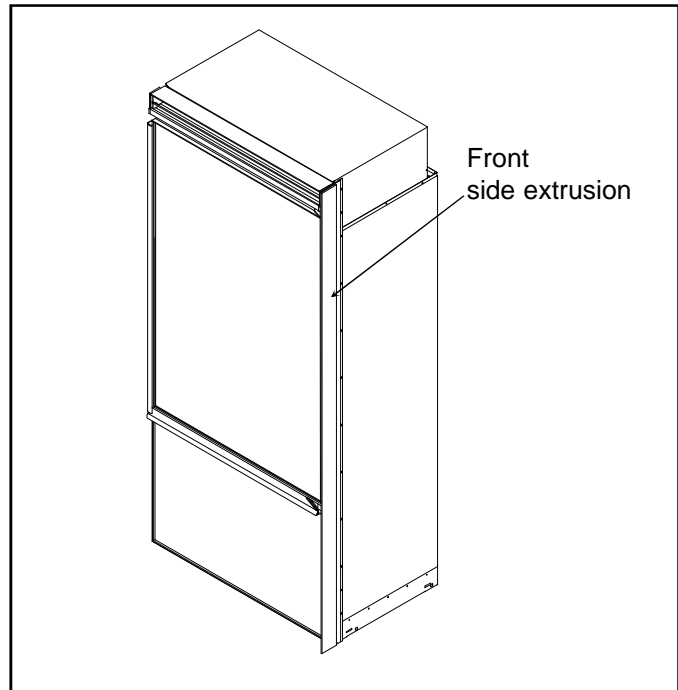
1. Remove toe grille from front of refrigerator by removing 2 screws and pulling forward.



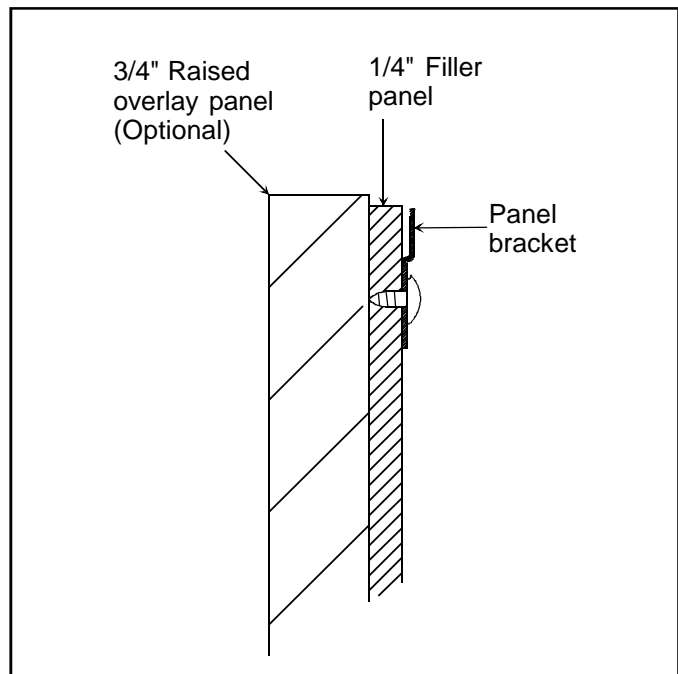
2. Remove drain pan clip from old toe grille and snap onto toe grille provided. Install toe grille by attaching to cabinet in same holes as previous toe grille, with 2 truss head 1/4" sheet metal screws.
  - New toe grille will not be as wide as original toe grille to allow installation of new side extrusion.
3. Remove front side extrusion and white spacer strip by removing 11 screws on both left and right sides. Retain white spacer strip located on machine compartment side.



4. Install new front side extrusion provided with kit using screws removed in step 3. Replace white spacer strip along machine compartment side.
  - If cabinet opening is less than 84 1/4" high, side extrusion needs to be trimmed to desired height.

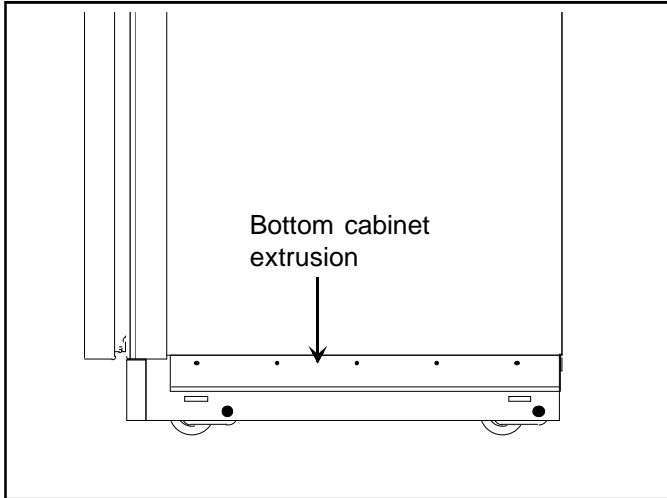


5. Mount left and right panel brackets to wood panel using 3/16" phillips screws provided.
  - If base panel is not 1/4" thick use plastic shims provided with kit to bring base panel depth up to 1/4".

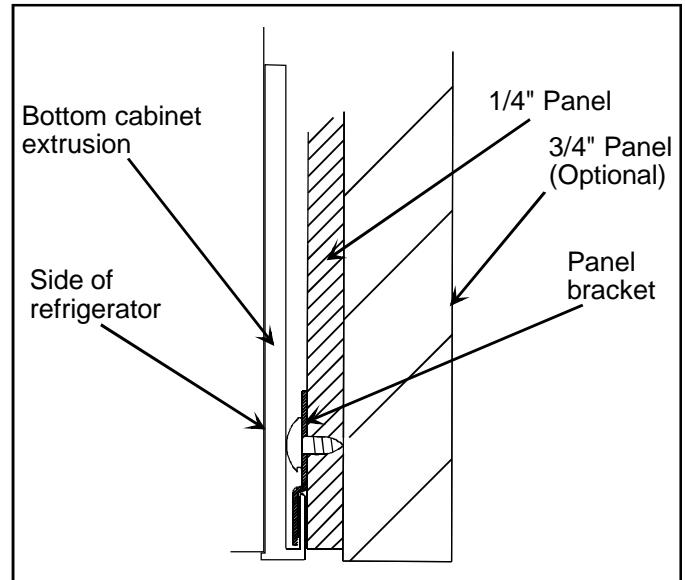


# B136SPK1 1/4" Facia Front Enclosure Kit

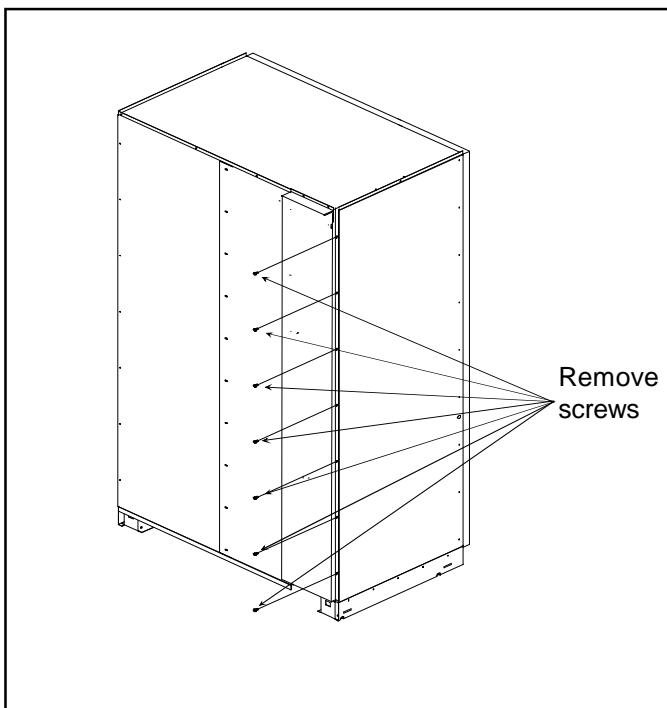
6. Mount bottom panel brackets using five, 3/16" phillips screws.
  - If base panel is not 1/4" thick, use plastic shims provided with kit to bring base panel depth up to 1/4".
7. Mount bottom cabinet extrusion using five, 1/4" flat head phillips screws.



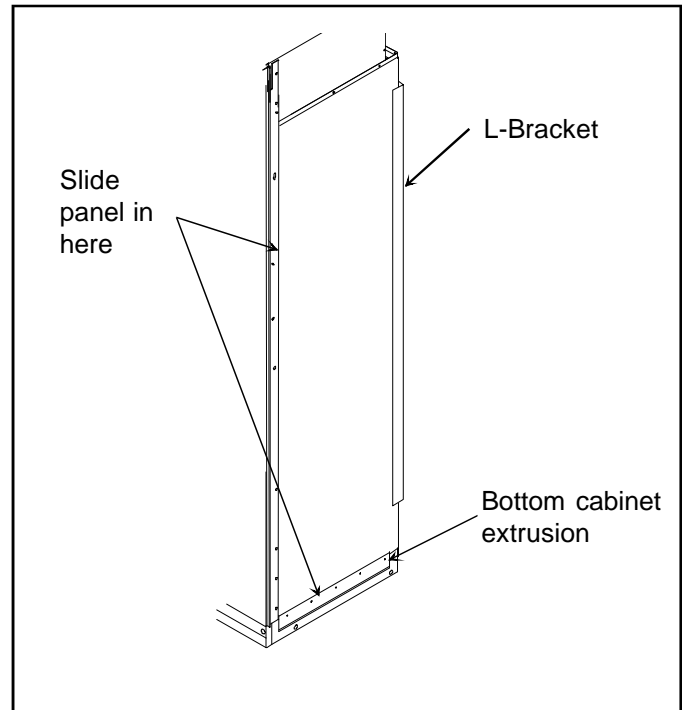
9. Slide panels into place on left and right side of refrigerator. Verify that panel bracket is resting in track on bottom cabinet extrusion. For smoother installation, apply bar soap to cabinet extrusions and panel brackets.



8. While facing back of refrigerator, remove 7 screws from right edge of refrigerator cabinet.



- Also, front panel bracket must fit in gap in front side extrusion.

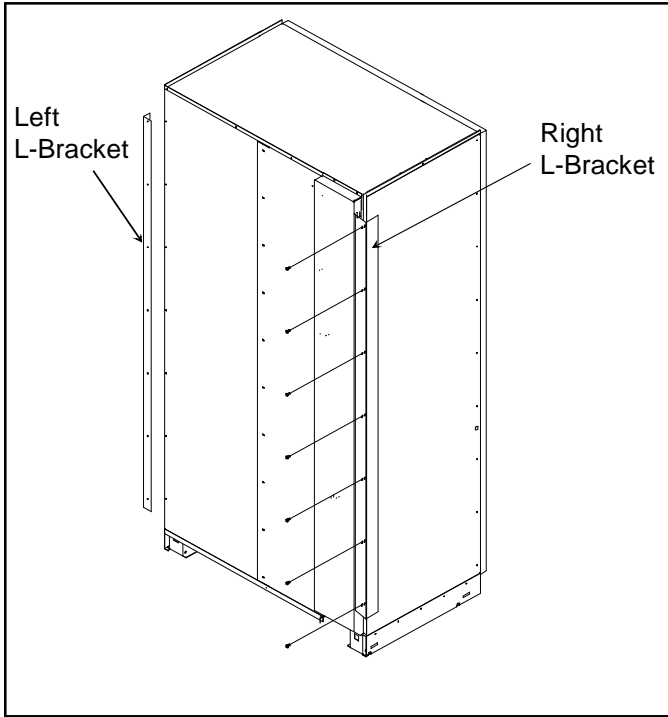


10. Line up holes in right side L-bracket with holes from 7 screws removed in step 4. Attach L-bracket to back of refrigerator using 7 screws removed in step 4.

# B136SPK1 1/4" Facia Front Enclosure Kit

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11. Line up holes in left side L-bracket with holes in left side edge of refrigerator back. Attach left side L-bracket to back of refrigerator using 7 truss head 1/4" sheet metal screws.





# B136SPK2 3/4" Side Panel Kit

## Introduction



**Recognize this symbol as a safety precaution.**



### **WARNING**

To avoid severe personal injury or property damage from refrigerator tipping over, do not open more than one door at a time, until refrigerator has been secured to structure.



### **Caution**

To avoid property damage, protect soft vinyl or other flooring with cardboard, rugs, or other protective material.



### **Caution**

To avoid personal injury, wear gloves to protect hands and arms. Trim pieces may have sharp edges.

Read entire manual before installing kit. Align parts checking for proper fit before beginning. All necessary tools and materials must be available prior to installation. Verify all listed parts are included in kit. If parts are missing, contact source from whom kit was purchased.

- Two people are recommended to install kit.
- Mechanical experience is required to install kit.
- If unable to solve a problem during installation, contact an authorized Amana technician. Locate a Factory Service Center or independent authorized technician by calling 1-800-628-5782 inside U.S.A. and 1-319-622-5511 outside U.S.A. Service is at owner's expense.

This kit is designed for applications with one or both sides of refrigerator being exposed. Kit includes trim necessary to install 3/4", or 1/4" wood panels on side of refrigerator to coordinate with kitchen decor.

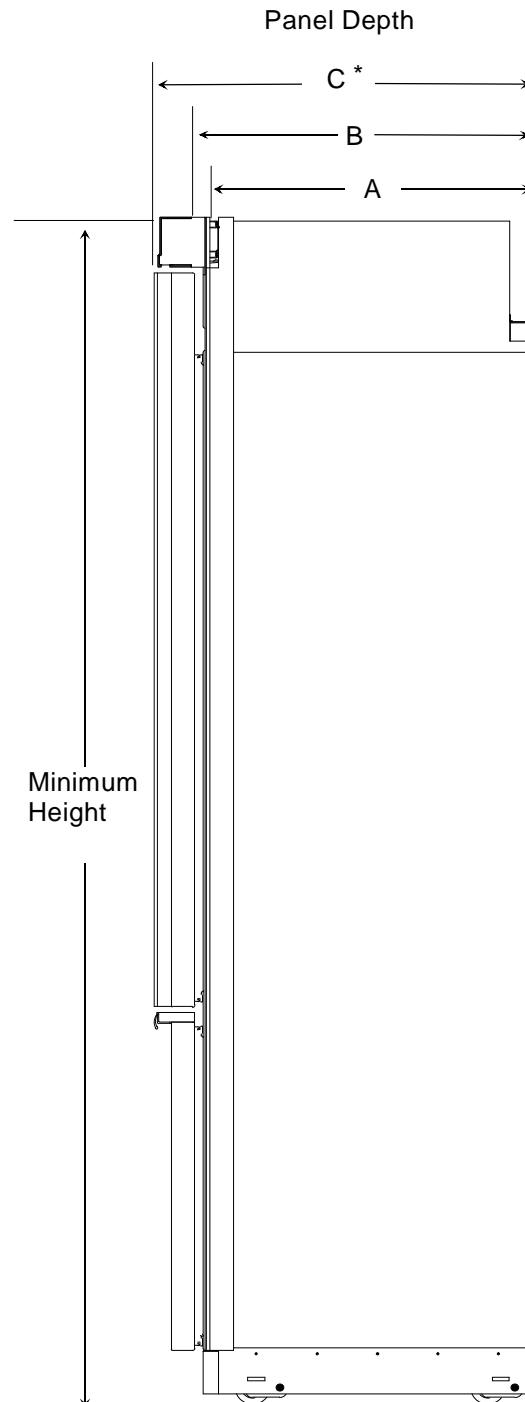
## Parts List

Part Number	Description	Quantity
12128401	Bottom cabinet extrusion	2
12200901	Cabinet bracket	2
12098007	Decorator panel bracket	2
12098005	Decorator panel bracket	2
M0215318	Small screw	10
M0210417	Small screw	7
M0223729	Small screw	58
12116504	Installation Instructions	1
12119604	Door bracket shim	8
12119605	Door bracket shim	4
12119602	Cabinet bracket shim	8

# B136SPK2 3/4" Side Panel Kit

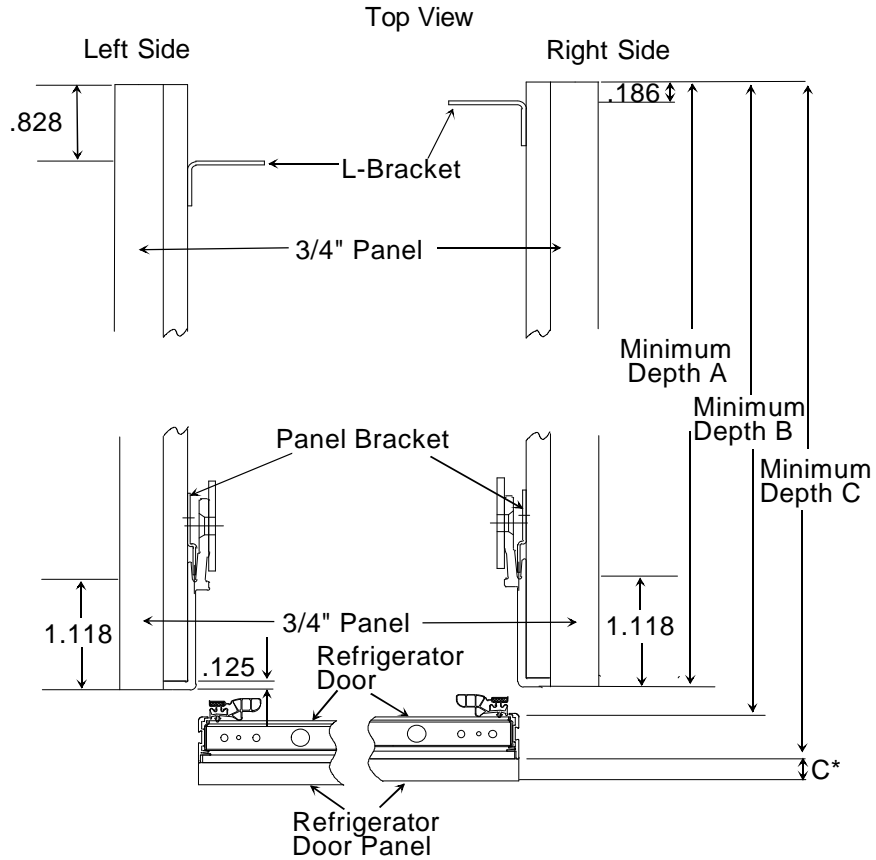
## Panel Dimensions

Side Panel Dimensions				
Panel Thickness (Inches)	Minimum Height (Inches)	Minimum Depth (Inches)		
		A	B	C*
3/4" Panels	83.125	21.875	22.571	24.108
<ul style="list-style-type: none"> <li>Panel height will vary depending how high leveling wheels have been raised when leveling refrigerator, and cabinet height.</li> <li>If cabinet depth is greater than 24", adjust panel size accordingly.</li> <li>3/4" panels may be extended to cover door gasket, door side, or door panel as shown by dimensions below and on page 4.</li> <li>Add refrigerator door panel depth to dimension C if attempting to extend side panel to cover side of front panel.</li> </ul>				

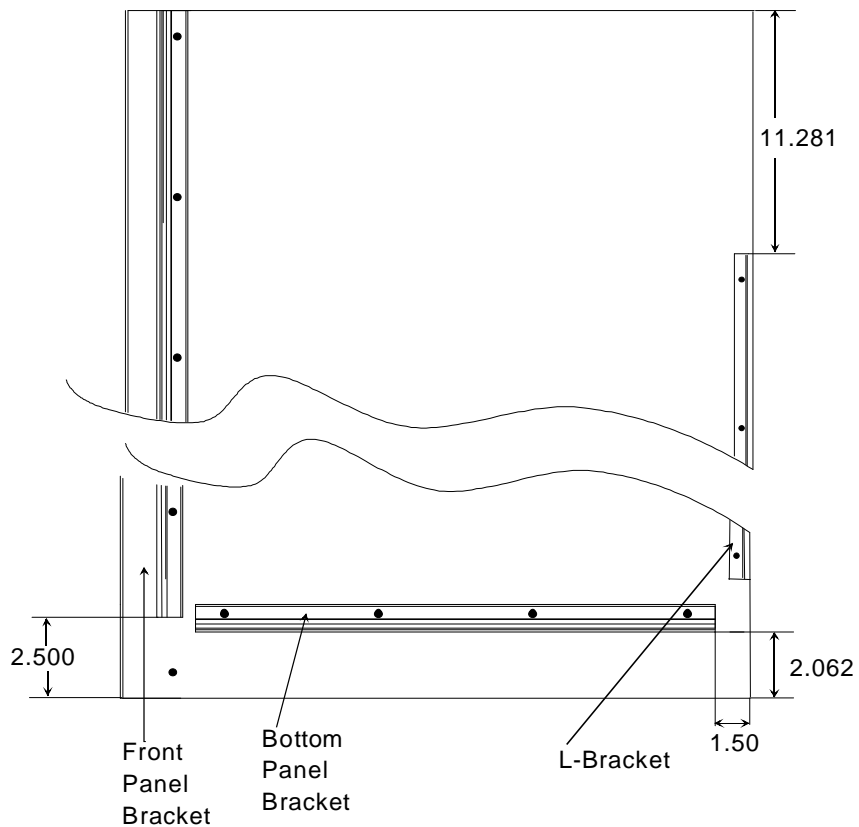


# B136SPK2 3/4" Side Panel Kit

## Location of Panel Brackets on Side Panels

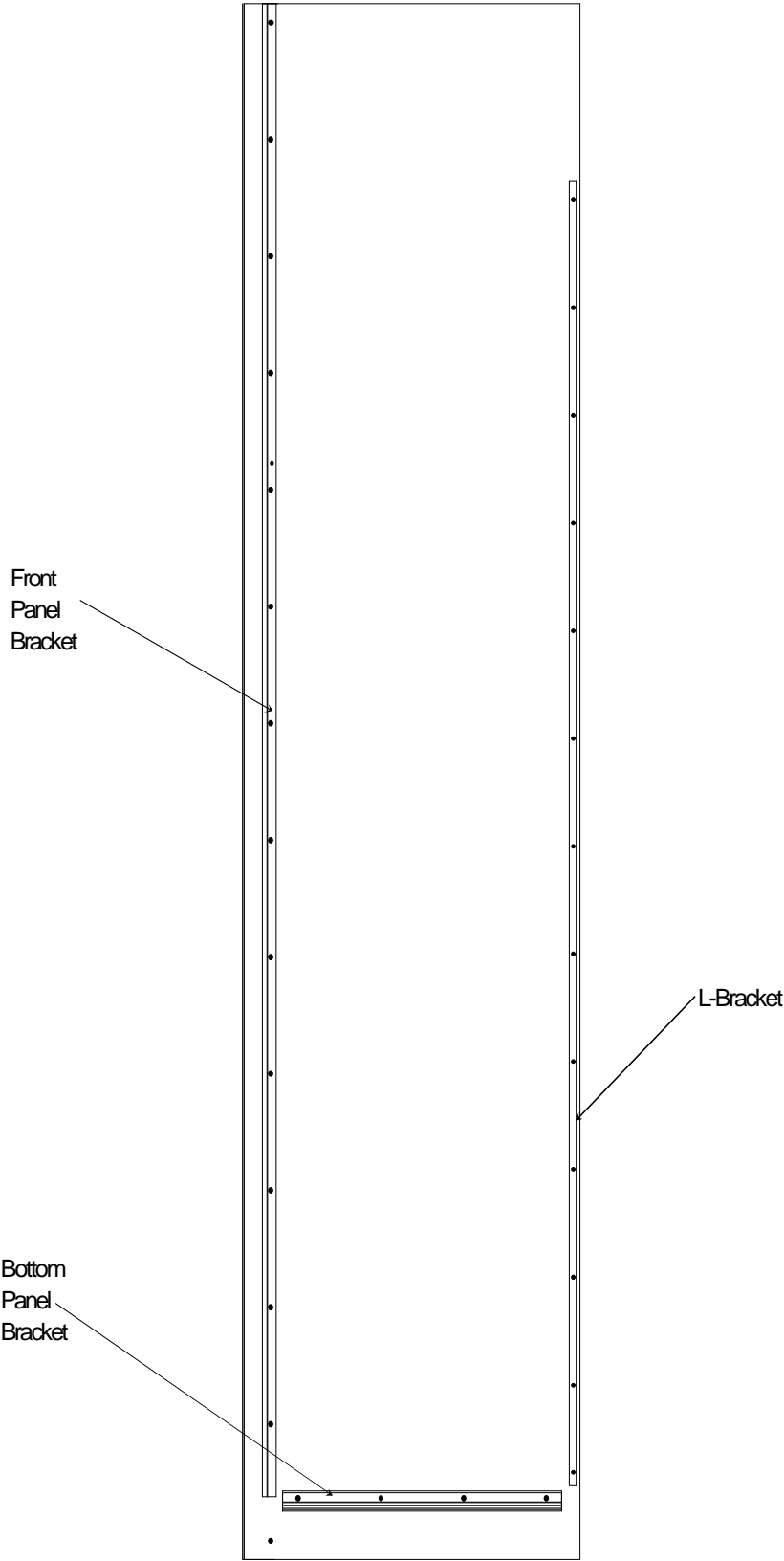


## Side view



# B136SPK2 3/4" Side Panel Kit

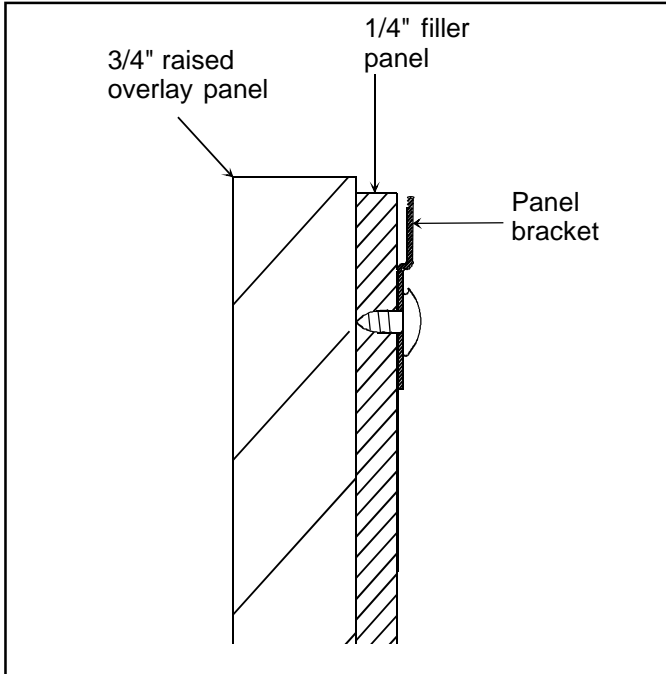
## Full Side View of Front Panel Bracket, Bottom Panel Bracket, and L-Bracket Location



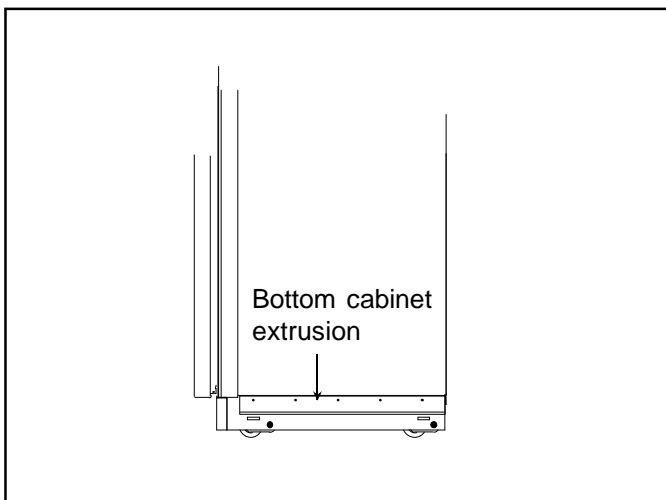
# B136SPK2 3/4" Side Panel Kit

## Procedure

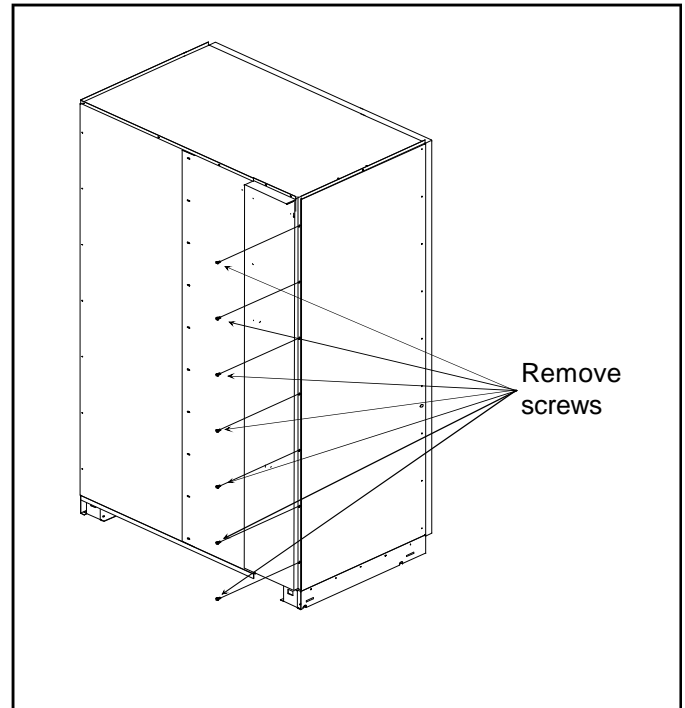
1. Mount left and right panel brackets to wood panel using 3/16" phillips screws provided.
  - If base panel is not 1/4" thick, use plastic shims provided with kit to bring base panel depth up to 1/4".



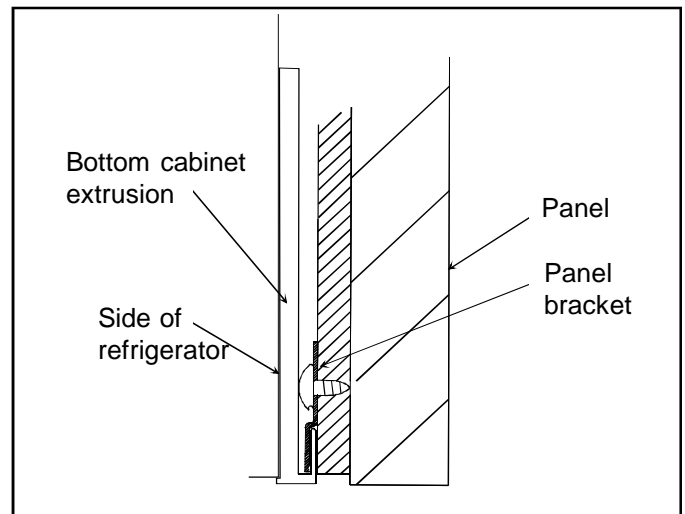
2. Mount bottom panel brackets using 5, 3/16" phillips screws.
  - If base panel is not 1/4" thick use plastic shims provided with kit to bring base panel depth up to 1/4".
3. Mount bottom cabinet extrusion using 5, 1/4" flat head phillips screws.



4. While facing back of refrigerator, remove 7 screws from right edge of refrigerator cabinet.

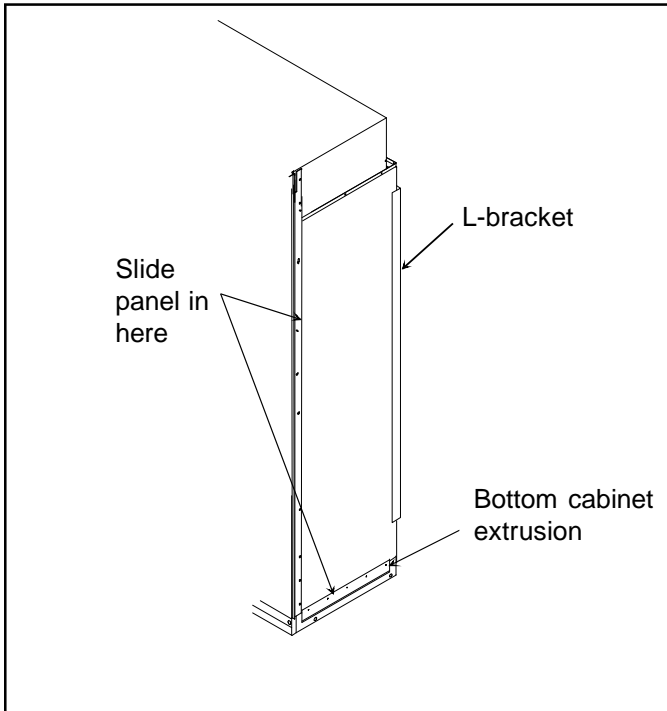


5. Slide panels into place on left and right side of refrigerator. Verify that panel bracket is resting in track on bottom cabinet extrusion. For smoother installation, apply bar soap to cabinet extrusions and panel brackets.



# B136SPK2 3/4" Side Panel Kit

- Front panel bracket must fit in gap in front side extrusion.



6. Line up holes in right side L-bracket with holes from 7 screws removed in step 4. Attach L-bracket to back of refrigerator using screws removed in step 4.
7. Line up holes in left side L-bracket with holes in left side edge of refrigerator back. Attach left side L-bracket to back of refrigerator using 7 truss head 1/4" sheet metal screws provided in kit.

